ILLUSTRATED BOUQUET

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THE

ILLUSTRATED

BOUQUET,

FIGURES WITH DESCRIPTIONS

NEW FLOWERS.

VOL. I.

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THE

ILLUSTRATED

BOUQUET,

CONSISTING OF

FIGURES WITH DESCRIPTIONS

OF

NEW FLOWERS.

VOL. I.

LONDON:
E. G. HENDERSON & SON, WELLINGTON ROAD, ST. JOHN'S WOOD.
1857—9.

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AND

DESCRIPTIONS OF PLANTS.

*** *The Names of the Plants figured are printed in small capital letters.*

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TO

HER ROYAL HIGHNESS,

THE PRINCESS MARY OF CAMBRIDGE,

AS A TRIBUTE TO HER ILLUSTRIOUS RANK,

AND REFINED TASTES,

AND AS A MEMENTO OF THE ARDENT ATTACHMENT TO FLOWERS

WHICH HER ROYAL HIGHNESS HAS EVER EVINCED,

THIS FIRST VOLUME

OF

The Illustrated Bouquet

IS,

WITH HER ROYAL HIGHNESS'S GRACIOUS PERMISSION,

MOST RESPECTFULLY DEDICATED,

BY

HER ROYAL HIGHNESS'S OBEDIENT HUMBLE SERVANTS,

EDWARD GEORGE HENDERSON.

ANDREW HENDERSON.

CREATOR OF ALL WORLDS! We bless Thy name,
That Thou hast mantled the green earth with flowers,
Linking our hearts to nature! By the love
Of their wild blossoms, our young footsteps first
Into her deep recesses are beguiled:
Her minster cells, dark glen and forest bower,
Where, thrilling with its earliest sense of Thee,
Amidst the low religious whisperings
And tremulous leaf-sounds of the solitude,
The spirit wakes to worship, and is made
Thy living temple. By the breath of flowers,
Thou callest us, from city-throngs and cares,
Back to the woods, the birds, the mountain streams,
That sing of Thee! Back to free childhood's heart,
Fresh with the dews of tenderness! Thou bidd'st
The lilies of the field with placid smile
Reprove man's feverish strivings, and infuse
Through his worn soul a more unworldly life,
With their soft holy breath. Thou hast not left
His purer nature, with its fine desires,
Uncared for in this universe of Thine!
The glowing rose attests it, the beloved
Of poet hearts, touch'd by their fervent dreams
With spiritual light, and made a source
Of heaven-ascending thoughts. E'en to faint age
Thou lend'st the vernal bliss:—The old man's eye
Falls on the kindling blossoms, and his soul
Remembers youth and love, and hopefully
Turns unto Thee, who call'st earth's buried germs
From dust to splendour; as the mortal seed
Shall, at Thy summons, from the grave spring up
To put on glory, to be girt with power,
And fill'd with immortality. Receive
Thanks, blessings, love, for these, Thy lavish boons,
And most of all, their heavenward influences,
O Thou that gavest us flowers!

Hemans.

GOD OF THE CHANGEFUL YEAR! — Amidst the glow
Of strength and beauty and transcendant grace,
Which on the mountain heights, or deep below
In shelter'd vales, and each sequester'd place,
Thy forms of vegetable life assume;
—Whether Thy pines, with giant arms display'd,
Brave the cold north, or wrapt in eastern gloom,
Thy trackless forests sweep a world of shade;
—Or whether scenting ocean's heaving breast,
Thy odoriferous isles innumerous rise,
Or under various lighter forms imprest,
Of fruits and flowers, Thy works delight our eyes,—
GOD OF ALL LIFE! whate'er those forms may be,
O may they all unite in praising Thee!

Roscoe.

Jas Andrews Del.t & Zinc.

Tea Rose.

Isabella Grey.

Printed by C Chabot.

PLATE I.

ROSE: ISABELLA GREY.

THIS charming variety belongs to the class of Tea-scented Roses. The plant, which is of free growth, and possesses a vigorous constitution, forms a moderate-sized climbing bush. It is furnished with clean glossy foliage, purplish beneath while young, afterwards glaucous; and is decorated with a profusion of large, full, rich golden-yellow flowers, which are admirably represented on the accompanying plate. Altogether, this new Rose must be regarded as a great acquisition, differing from the Tea-Roses already in cultivation in the *golden* hue of its yellow flowers; and as one of the finest of its class as a pillar Rose, or for planting in the conservatory.

It was raised in South Carolina, in the garden of Mr. Grey, and was brought thence by Mr. Low, jun., of Clapton. When seen by Mr. Low, the plant, loaded with flowers, was exposed to a burning sun without any injury being sustained by the latter. A fine specimen, exhibited by Messrs. Low and Co. before the Horticultural Society of London, on April 7, 1857, the first occasion of its producing blooms in this country, bore upwards of forty blossoms, large, double, fragrant, and richly-coloured, and giving ample indication of its merit. This plant, together with the stock, has been since transferred to the hands of Messrs. E. G. Henderson and Son, of St. John's Wood.

It appears that there are other Roses in cultivation, as yet unproved, bearing some resemblance in name to the present variety, namely, *Miss Grey*, *Julia Grey*, and *Mary* or *Jane Grey*. These must not be confounded with the golden-yellow *Isabella Grey*.

In the culture of Roses, a rich loamy soil, but of light and porous texture, should be employed; and not only the Tea-scented but all other Roses, are much benefited by liquid manure during the growing season, applied judiciously, *i.e.*, frequently, and in a much diluted state. Mulchings of decayed manure, or rich composts, applied to the surface of the soil about the plants are also beneficial, and answer the same purpose. As a rule, the Rose requires high feeding, but this must be checked if disarrangement of the equilibrium of growth, from excessive luxuriance, seems likely to supervene.

In cultivating Tea Roses in the open garden, the greatest care should be taken to secure them against danger in the winter season. For this purpose special measures of protection should be resorted to. Selecting a fine dry day in November or December, before severe frost has done any serious mischief, the branches and soil being quite dry, and the remaining leaves removed, the branches should be covered up with new dry straw or fern, secured so as to render it impervious to rain. If the plants are against a wall, this may be done by means of list or string nailed close; or, if they are in the open borders, the branches may be secured to a stake, and the whole enveloped in the covering material, which should be placed in the form of a pyramid, extending up from the roots, over which also a layer should be placed, so that the rain may be thrown off. Much more mischief is likely to result from the alternate freezing and thawing of moisture lodged about the roots, than from any degree of mere cold to which the plants are likely to be subjected.

Tea Roses are admirable subjects for planting out in conservatories, where, without occupying much space, they

may be made very ornamental. They may be trained close in a pyramidal form, the branches being regulated by recourse to spur-pruning; or they may be used for covering walls, trellises or wire arches, or for training about the doorways. For these latter purposes only the vigorous growers should be employed, or else free-growing kinds must be planted, and, when established, inoculated with the buds of the less vigorous Tea-scented kinds. *Fortune's Banksian* Rose is a most excellent stock for the Tea Roses. In cases where it is not convenient to plant inside the conservatory, standards may be planted outside, and the heads brought within the house.

The following varieties of Tea-scented Rose are recommended for general cultivation:—

Adam: rose, dark centre, very large and fine.

Bougère: shaded rose, very large and fine; robust habit, and hardy character.

Comte de Paris: pale blush, very large and fine; dwarf habit.

Devoniensis: creamy white, large, and one of the most magnificent of Tea Roses; good habit, and hardy character.

Elise Sauvage: pale yellow and orange; a beautiful Rose; habit rather delicate.

Gloire de Dijon: fawn, shaded with salmon and orange, large, and one of the finest of Tea Roses; hardy, and of free robust habit.

Goubault: bright rose shaded, very large and fragrant.

Laurette: salmon blush, fine large flower; vigorous habit.

Madame Bravy: cream colour, very large and double; recommended for house culture, the flowers not opening well out of doors.

Maréchal Bugeaud: bright rose with dark centre, large and fine.

Madame Willermoz: white with salmon centre, fine large flower; vigorous habit.

Moire: flesh, shaded with fawn, large and fine.

Niphetos: pure white, lemon centre, large flower.

Princesse Adelaide: yellowish white, fine.

Safrano: buds bright apricot colour, and very beautiful; after expansion fawn colour, and very thin of petals.

Smithii: straw with yellow centre; should be cultivated under glass, the flowers not opening well out of doors; buds beautiful in form; the perfume very fine.

Souvenir d'Elise: creamy white, tinted or shaded with rose, the centre rosy salmon; large flowers, with fine bold petals.

Souvenir d'un Ami: deep rose, large and fine; a beautiful Rose.

Vicomtesse de Cazes: bright orange-yellow; distinct and fine.

Yellow China, or *Tea:* pale sulphur; the bud large, elongated, and very beautiful; semi-double.

Verbenas

1 Marietta
2 Lady Palmerston
3 Prince of Prussia
4 Souvenier de Exposition
5 Lady Turner
6 Lady Fred.k Fitzroy
7 Lady Albinia Foster
8 Queen of Oude.

Jas Andrews Delt & Zinco

Printed by C. Chabot

PLATE II.

NEW VERBENAS.

THE *Verbena* has become a plant of great importance for the decoration of the flower-garden; its prostrate habit, and profuse as well as continuous flowering properties, no less than its simple and easy culture, being found to render it adapted in a special degree for the modern system of producing effect by the arrangement of colours in masses. The facility with which large numbers of plants may be provided, and the variety of shade and tint afforded by its colours, furnish additional reasons why it should have become, as no doubt it has, the most popular of flower-garden plants.

The present garden race of *Verbenas* has sprung from the intermingling of several species, or wild forms, of which the prostrate-growing brilliant scarlet *V. Melindres* or *chamædrifolia*, the pinkish *V. incisa*, and the rosy-crimson *V. Tweedieana*, may be taken as the types; while the more vigorous and less prostrate habit observable in some varieties has been imparted by *V. teucrioides* and its allies. The varieties resulting from these intermingling of diverse races, have been still further diversified and modified by the florist, until almost every shade and combination of colour has been obtained, together with increase of size and greater rotundity of form in the individual flowers; so that the latter now approach closely to ideal perfection.

It is an important consideration in selecting varieties for massing, in order to secure effect, that they should possess colours of a decided character, and such as will withstand the influences of changes of weather, some colours being affected by bright sunshine, and still more by rain. Much of the beauty of a *parterre* is dependent on due regard being paid to this point.

The varieties represented on our plate, all possessing considerable merit in an ornamental point of view, are as follows:—

Fig. 1. MARIETTA.—Pure white with a conspicuous feathery carmine centre; a very chaste and elegant flower.

Fig. 2. LADY PALMERSTON.—Salmon-pink with a zone of rose crimson around the yellow eye.

Fig. 3. PRINCE OF PRUSSIA.—Rosy-violet or plum colour, with white eye surrounded by a dash of crimson; a fine bedding variety.

Fig. 4. SOUVENIR DE L'EXPOSITION.—Lively pink, with starry crimson centre; a gay and attractive flower.

Fig. 5. LADY TURNER.—Deep pink with large yellow eye surrounded by a slight zone of cerise; a fine and lively bedding variety.

Fig. 6. LADY FREDERICK FITZROY.—Bright rosy-purple with bold white eye; a striking variety.

Fig. 7. LADY ALBINIA FOSTER.—Cerise-rose, becoming deep crimson towards the base of the segments, the latter colour surrounding the large yellow eye.

Fig. 8. QUEEN OF OUDE.—Light purple with white eye surrounded by a zone of crimson.

Recently a flower of entirely novel character has been introduced among *Verbenas*. This is the variety known as the *Imperatrice Elizabeth* (also called *V. pulchella Maonetti*). It was introduced from Germany in 1856, and is a variety of *V. pulchella*, a perfectly distinct species, of compact creeping habit, rising not more than two or three

inches above the soil, and having elegant laciniated foliage, and comparatively small trusses of flowers, but so freely produced, that it is perfectly adapted for small beds, as well as for planting in vases and ornamental baskets, and as an edging. In the new variety the colour is a violet-rose, or deep rosy-lilac, the sides of each segment pure white, so that the flower is elegantly striped in a very distinct and effective manner.

In addition to the foregoing, the following kinds may be recommended for general cultivation :—

Angelica Kaufman: shaded grey, with dark centre; a new and distinct colour.

Auguste Maquet: pink, with deep purplish-crimson centre; distinct.

Dazzle: bright dazzling orange-scarlet, with large and bright clear yellow eye; short jointed, not rambling in growth, and well adapted for beds.

Etoile des Jardins: rose, with a broad border of white; large and fine.

Etoile du Nord: rich scarlet edged with rose; distinct.

Géant des Batailles: rich dark crimson-scarlet; large truss and fine habit.

Jeanne d'Arc: blush-pink with dark centre; large truss; a good bedding kind.

La France: deep salmon-pink, dark centre.

Lord Raglan: scarlet-cerise, with yellow eye; large truss.

Madame Adolphe Weick: purple, striped and shaded with fiery red.

Madame Matras: pink with crimson eye; large truss.

Madame Paul Firino: lilac, with deep rose-crimson centre, extending from the base half-way over the segments.

Madame Plantamour: deep salmon-pink with crimson centre.

Madame Zoudier: crimson-scarlet, with a stripe of rose on either side the segments; a distinctly striped flower.

Mademoiselle de Vallière: French white, mottled and striped with lavender.

Mademoiselle Nodet: beautiful deep salmon-pink with dark eye.

Marmion: rich maroon-crimson, large light eye; fine and distinct colour.

Moonlight: pure white; large truss; the finest white for bedding, and constantly pure in colour.

Mrs. A. Mildmay: true rose, with darker shade in centre, a straw-coloured eye; a decided colour, and a very showy and beautiful bedding variety.

Mrs. Holford: fine white, large.

Queen Victoria: salmon-pink, with rich bright scarlet centre extending half-way over the segments.

Reine des Panachées: white mottled and striped with violet.

Salvator Rosa: a beautiful rose-coloured variety for bedding.

Sarah; white striped with lavender.

Scarlet King: fine compact scarlet, white eye.

Souvenir de Lyon: rich violet-crimson.

Standard Bearer: rich blue-purple with white centre; one of the most effective of the dark-coloured varieties.

Surpasse Apollon: violet-plum; very large truss.

Viscountess Emlyn: white, with bright crimson eye.

1 Bouvardia Oriana
2 Bouvardia Laura
3 Bouvardia Hogarth
4 Veronica decussata Devoniana.

Jos. Andrews Delt & Zinco

Printed by C. Chabot.

PLATE III.

NEW HYBRID BOUVARDIAS, ETC.

(Figs. 1, 2, 3.)

THESE beautiful novelties were raised by Mr. Parsons of Brighton, from *Bouvardia longiflora*, hybridized with *B. leiantha*, the former a species with pure white flowers, one of the most chaste and elegant ornaments of the garden and the greenhouse; the latter bearing large trusses of brilliant scarlet blossoms in profusion throughout the summer and autumn, when planted out in the flower garden, and forming an equally attractive ornament for the greenhouse during autumn and winter, when cultivated in pots. The hybrids partake of the character of both parents; having the broader foliage and robust habit, with the large trusses of flower characteristic of *B. leiantha*, and the larger individual flowers with bold spreading segments, similar to *B. longiflora*, while the colour has been modified by the intermingling of the white and scarlet of the parents. The large trusses or corymbs, consisting of thirty or more flowers, are not unlike the bunches of *Ixora* blossoms. The flowers themselves possess a peculiarity invaluable for bouquets, since they appear as firm after being cut and placed in water for ten days, as when first gathered, and retain their brilliance of colour. These fine flower-garden plants are in the hands of Messrs. E. G. Henderson and Son of St. John's Wood.

Fig. 1. ORIANA, is a plant of fine habit; the flowers light scarlet with a pinkish tube.

Fig. 2. LAURA, is of spreading habit; flowers uniform pale pink or flesh colour.

Fig. 3. HOGARTH, is of robust habit, with fine broad foliage; flowers deep salmon pink with a paler tube.

The soil for *Bouvardias* should be maiden loam of a fibry character, with small portions of peat and sand added; but they are plants of easy culture, and will grow well in any moderately good light garden soil. For bedding and for ornamental baskets they are admirably suited; and nothing can be more light and graceful as edgings to beds of other flowers than *B. splendens* and *angustifolia*, their habit being close, without any tendency towards rudeness of growth.

The whole tribe is adapted for the flower-garden, except *B. flava* and *B. mollis* (*Cavanillesii*). *B. longiflora* planted out last season at Enville Hall, the seat of the Earl of Stamford and Warrington, was found to be an excellent plant for the flower-garden, so that there is no doubt it will prove one of the most unique white-flowered plants in cultivation for late beds, the foliage being much finer than when grown in pots, and the flowers profuse and continuous. For pot-culture this kind is unequalled for its character of continuous flowering. In winter it should be rested on a shelf in a close house, for in an ordinary greenhouse it would be apt to die off; indeed young plants are better kept in the stove during winter. The scarlet-flowered kinds, *B. triphylla*, *leiantha*, &c., are all of a more hardy character, and after the flowering season may be stored away with *Dahlias*, *Fuchsias*, and similar plants at rest, until they are started again in spring. They all make pretty pot-plants. *B. leiantha* and the new hybrids are free in growth, and retain their foliage

through the winter, the others being deciduous. Those plants which have been planted out, may be re-potted in autumn, and will be found much better suited for bedding-out the following season, than cuttings, as they flower earlier, and more profusely. The plants may be cut down with advantage before they are started into growth in spring. Old plants if made to renew their growth in March in a little warmth, will flower in May, and continue blooming all the season. Cuttings root freely, like other soft-wooded bedding plants, and the old roots divide with facility; while root-cuttings furnish another ready mode of increase.

The following are the best kinds for cultivation, in addition to those figured:—

B. triphylla splendens: one of the most free-flowering; dwarf and compact; produces little tufts of bright scarlet tubes.

B. angustifolia—the true plant: dwarf and very free-flowering; small narrow foliage; intense scarlet flowers, the most brilliant coloured of the tribe.

B. leiantha: larger foliage and gives larger trusses of flowers than either of the preceding; scarlet; cultivated in pots it is a useful plant for decoration, as it continues many months in flower.

B. Rosalinda: fine salmon scarlet; large flowers; similar to the varieties figured; fine habit and compact trusses.

B. longiflora: the most distinct of the tribe, flowering in graceful tufts; flowers pure white, jasmine-like, delicately scented, and produced from April to December, if kept in a gentle heat.

B. flava: distinct, with pale yellow flowers; unlike the others it gives but few flowers in summer; its principal flowering season is the spring, when it blooms on short growths from the preceding year's shoots.

VERONICA DECUSSATA DEVONIANA.

(Fig. 4.)

This fine variety was raised by J. Luscombe, Esq., of Combe Royal, near Kingsbridge, Devon. Its parent, *V. decussata,* is an old species of compact habit, with well-set foliage, but shy in producing flowers. The new variety has a striking resemblance in growth to a miniature *Crassula coccinea.* The leaves are larger than those of *V. decussata;* but the great improvement is in the profusion of flowers which it produces, each shoot being surmounted with globose heads, four or six together, of pure white flowers, the individual flowers much larger than those of *V. Andersoni, V. speciosa,* or their varieties.

The soil for these shrubby *Veronicas* should be maiden loam, somewhat lightened and enriched; but their culture is most simple, and they will grow freely in any garden. They form nice pot-plants, and are very ornamental subjects for training against a low wall, either in the open garden or the conservatory. They all have abundant bright green foliage. When growing out against a wall, the precaution of nailing a mat or some clean dry straw over them in winter, should be taken, as, although they withstand the severity of our winters in the West of England, they are not safe every season without this protection.

The following are a few good distinct kinds:—

V. Andersonii: bears fine spikes of lilac flowers, which as they get older change to white, producing a pleasing variety of colour; clean healthy foliage.

V. Andersonii variegata, differs in having the foliage finely variegated, nearly two-thirds of the leaf being white.

V. Imperial Blue: a fine flowering kind: violet-blue.

V. meldensis: a profuse flowerer, even in small plants; spike large and full, bright rose on first opening, changing as it advances to white, producing a finely varied appearance.

V. speciosa coccinea: red; distinct in foliage, which is broader, and the growth more robust; but it is a shy flowerer.

Geraniums.

1 Lady of Loretta.
2 Royal Standard.
3 Fontainebleau.
4 Gulford Beauty.

Mrs Andrews Del.t & Lith.

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PLATE IV.

VARIEGATED-LEAVED PELARGONIUMS (OR GERANIUMS).

THE varieties formerly cultivated, of the class of Variegated-leaved *Pelargoniums*, bore flowers so very inferior in form, size, and quality, that they were not sufficiently attractive for general bedding-out purposes, but were used only for the sake of their foliage, or in special cases. The introduction, however, by the Messrs. Lee of Hammersmith, of the variety called *Flower of the Day*, seems to have raised in public estimation the varieties of this character, so that at the present time, many highly ornamental kinds are available for flower-garden decoration, equally ornamental as regards their flowers, with the many fine varieties of the *zonale* or Horse-shoe marked class.

Of those varieties which had for some time become established favourites, that called the *Golden Chain* has been extensively employed as a border to other flowers, in which position it has a remarkably brilliant effect from the golden tint of its variegation. *Mangles's Silver Bedder*, also known as *Lady Coventry*, has been also much used; and to this day it is unequalled for its peculiar trailing habit, and by the aid of a little artificial help, may be made to cover the whole surface with its delicately marked foliage, which does not rise more than three or four inches from the ground. An admirable effect is secured by planting scarlet *Verbenas* over the beds, the surface being covered with this *Pelargonium;* and many other arrangements equally effective may be adopted. Indeed, by keeping a large stock of these two kinds on hand, the cultivator may from year to year entirely change the aspect and style of the flower-garden. In the case of both these varieties, however, the flower-buds should all be gathered off before they open, as the plants are employed only for their foliage.

It is in respect of their flowers chiefly, though in some respects also in regard to their variegation, that the modern varieties have been so much improved. Richly-coloured and well-formed flowers have, in many cases, been superadded to pleasing variegation of foliage, while the introduction of different shades of red into the variegation of the leaf itself, has, in addition, rendered some of the varieties much more beautiful than formerly in regard to their foliage. The varieties which are figured on our plate show both of these improvements. They are as follows :—

Fig. 1. LADY OF LORETTO.—Habit dwarf and compact; leaves pale green in centre, with a zone or horse-shoe shaped mark of brown, the margin deeper green; flowers bright cerise-scarlet with clear white eye.

Fig. 2. ROYAL STANDARD.—Leaves green in the centre, with a bold yellowish margin; flowers bright orange-scarlet, fine.

Fig. 3. FONTAINEBLEAU.—Leaves finely marked, green, somewhat marbled in centre, zoned with red over brownish blotches towards the margin, which is cream-coloured; flowers bold, cheerful light rose; a novel colour in the highly variegated class.

Fig. 4. CULFORD BEAUTY.—Habit robust, resembling *Flower of the Day;* leaves greyish green, with a deep rich sulphur-coloured margin; flowers in large corymbs, brilliant orange-scarlet, of fine form.

The soil for these classes of *Pelargoniums* should be a light rich loamy compost, such as would be

used for the fancy varieties. In bedding out, it is advisable to add some fine soil around the roots, unless the garden soil is of a suitable nature.

Both the Variegated and the Horse-shoe classes remove well from the flower-garden in the autumn, and may be taken up and potted without fear of failure. After potting, they should be set in a house, or pit, and partially shaded, but little water being given. They will lose much of their foliage, especially if they have been in free growth. In winter they should be kept in a greenhouse provided with the means of repelling frost and damp; and in spring, if heat is applied, they will furnish a plentiful supply of cuttings for young stock. The old plants break well, and will also be available for planting out.

The following additional Variegated-leaved *Pelargoniums* are highly recommended:—

Alma: dwarf habit, neat white variegated foliage, and free scarlet flowers; forms a good pot-plant.

Annie: robust habit, the foliage margined with sulphur, the flowers large, bright scarlet.

Bridal Bouquet: dwarf compact habit; foliage neat, margined with white, and with a shaded red zone; flowers bright scarlet; a pretty little plant for pot culture.

Countess of Warwick: distinct and free; foliage margined with white and having a dark zone shaded with red; flowers scarlet.

Emperor: free habit and profuse flowerer; leaves margined with pure white; flowers large, profuse, of fine form, brilliant scarlet.

Golden Chain: the rich golden-yellow which predominates in the foliage, renders the variety unique among foliage plants for edging and other ornamental purposes; habit free but dwarf and compact; flowers of no value, and should be picked off while in the bud.

Hotel de Cluny: habit neat, compact; leaves small, with a red and dark zone bordering on the centre green, the margin white; flowers bright scarlet, free; a very pretty kind for pot culture.

Lady Coventry (Mangles's Bedder): possessing a peculiar trailing habit, this variety becomes useful for many purposes for which other kinds are not adapted; it may be pegged down to cover the surface of the ground; foliage nicely variegated with white; flowers of no value.

Mrs. Lennox: habit free; flowers scarlet, liable to become injured by the sun; a beautiful variety, and one of the best for bedding out, on account of the permanence of the pure white margin to the leaves.

Mountain of Snow: a fine variety, the leaves having a pure white margin; flowers scarlet, and not apt to burn, as in *Mrs. Lennox.*

Peach Blossom: dwarf habit, small; leaves margined with white; flowers cerise or pale salmony rose; adapted for pot culture only.

Silver Queen: habit free; fine white variegated foliage; flowers pink, but of little value for effect; besides being useful for the garden, it is very ornamental for the conservatory through the winter, being the best of the kind for retaining good foliage in a cold house, at that season.

Gloxinia erecta.

1 Sir Hugo
2 Donna Colonna
3 Eloisa
4 Helen of Orleans
5 Tarragona
6 Roi des Belges
7 Madame Picoutine
8 Dionysius
9 Fulgens
10 Princess Royal

J. Andrews, Del.t & Zinco

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PLATE V.

NEW SEEDLING GLOXINIAS.

THE garden varieties of *Gloxinia*, which have sprung from the purple-flowered *G. speciosa*, and some allied species, are among the most popular and ornamental of herbaceous plants for the decoration of the stove and greenhouse during the spring and summer months. In their typical form, represented on our plate by *fig.* 1, the flowers are unsymmetrically tube-shaped, the mouth of the tube being directed downwards; and they are placed on short upright stalks, which elevate them above the rich velvety foliage. Of this form there are many beautiful varieties.

About a dozen years ago (in 1845) a new race with erect flower-tubes was obtained. The original erect-flowered variety, named *G. Fyfiana*, an accidental seed sport, was raised by Mr. Fyfe, a gardener of Rothesay, Bute; the flowers were of a greyish-white, with a band of purple surrounding the throat of the tube. It is a somewhat remarkable fact, that this accidental deviation from the normal structure of the flowers of *Gloxinia*, resulting in symmetry of form while the type is unsymmetrical, should have been perpetuated by seeds; but such is the case, and erect-flowered *Gloxinias* have become numerous. M. Jæger, head-gardener to the Grand Duke of Saxe Weimar, at Eisenach, has, by a course of careful hybridation, effected great improvements among them, both as regards their size and colours; and we are indebted to him for most of the strikingly beautiful new varieties, figured on the accompanying plate.

Fig. 1. Sir Hugo.—One of the drooping-flowered class; corollas large, rich purple, with a delicately spotted white bar down the under side of the tube; the limb oblique spreading. The tube is nearly of the same colour as the limb.

Fig. 2. Donna Colonna.—Erect-flowered; corollas white, marked with bluish-purple around the throat of the tube, the colour extending some distance down the centre of the segments of the limb, which are distinct, with an open sinus.

Fig. 3. Eloisa.—Erect-flowered; corollas large, white, the segments of the limb having a narrow open sinus, nearly covered with dark crimson, shading off purplish in the throat.

Fig. 4. Helen of Orleans.—Erect-flowered; corollas white, purple around the throat, passing off to blue towards the centre of the overlapping segments. The clear blue tint of the exterior side of the blotches is very pleasing.

Fig. 5. Tarragona.—Erect-flowered; corollas white, the throat surrounded with rich carmine, somewhat extending outwards towards the centre of the overlapping segments. The flowers are smaller than in some other kinds, but very attractive on account of the rich colour of their marking.

Fig. 6. Roi des Belges.—Erect-flowered; corollas white, the throat rich blue-purple, extending up the base of the segments of the limb.

Fig. 7. Madame Picouline.—Erect-flowered; corollas large, the tube white, the limb pale bluish-purple, the throat surrounded with darker purple, forming distinct blotches opposite the centre of the segments. A very beautiful and showy flower.

Fig. 8. Dionysius.—Erect-flowered; corollas large, white, the throat surrounded by bright mottled rosy carmine, somewhat extending towards the broad overlapping segments of the limb.

Fig. 9. Fulgens.—Erect-flowered; corollas large, the tube flesh, the limb light rosy carmine, a rich deep carmine zone extending into blotches opposite each of the broad imbricating segments of the limb surrounding the throat of the tube. A richly-coloured and very attractive flower.

Fig. 10. Princess Royal.—Erect-flowered; corollas large, the tube white, the limb delicate pale purple or bluish-lilac, darker and forming a zone around the throat, the darker colour suffused around a whitish blotch which occupies the base of the segments of the limb. A very chaste and delicate flower.

NEW SEEDLING GLOXINIAS.

The culture of these plants is very simple. They require a stove, or, what is better, a warm close pit or frame. The best soil for them is a mixture of loam and peat, the latter predominating, all broken up together roughly with the hands, and a moderate quantity of sand added. The pots must be well drained, as they require a liberal supply of water when growing. In autumn the leaves gradually die away, and when this happens, they should be kept comparatively dry, and may be placed for the winter on any out-of-the-way shelf beyond reach of frost or damp; but it is desirable that the tubers should not be allowed to remain for any length of time quite dry, as, unless they are thoroughly ripened, they shrivel and become weakened, or frequently perish. For convenience of storing, the tubers may be removed to smaller pots of fine soil partially dried, being covered so as to exclude the air, and prevent them from shrivelling so much as to endanger their vitality. In spring these tubers may be potted in moderate-sized well-drained pots; the pots to be placed in the warm house or pit, and the soil very cautiously moistened until growth is established. Afterwards they must be changed to larger pots as the roots multiply. Thus treated, they flower during the summer months; but they may be had in flower through the winter and spring months by starting the tubers into growth sufficiently early in autumn, the culture being the same as when started in spring. We have also seen them flowering well through the autumn, when they have been started in spring, in a gentle hot-bed, and removed to a greenhouse when somewhat advanced.

Gloxinias are, moreover, very ornamental when planted in wire baskets and ornamental hanging vases. Grown in this manner, the foliage and flowers are shown off to much advantage; but they require rather more attention in watering when treated in this way, and a good layer of nice green moss should surround the soil, to assist in retaining moisture during hot weather. The drooping varieties are admirably adapted for this mode of culture.

We can strongly recommend the varieties enumerated below, in addition to those figured, for general cultivation.

ERECT-FLOWERED SECTION.

Alba auriculata: pure white; the throat of the tube bright rose-colour.

Auricula: white; the limb pale blue, shaded darker around the throat of the tube.

Boothiana: white; the throat of the tube, and centre of the segments of the limb, carmine or bright crimson.

Duchesse de Brabant: pure white throat and tube, with violet limb.

Gentiana: purple-violet tube and limb.

Grandis: white, with carmine throat.

Imperatrice Eugenie: white tube and segments; the throat or centre rich purplish-crimson.

Ipomœa: pure white tube and throat, with violet-blue limb.

Marie Pawlowna: white tube and throat, with porcelain-blue limb.

DROOPING-FLOWERED SECTION.

Beatrice d'Est: white, with dense blotch of puce-violet over the three lower segments.

Cartoni robusta: delicate pink, margined with white.

Dr. Reichenbach: large, pale blue, with straw-coloured throat.

Duke of Wellington: large, rich carmine or crimson.

Eugenie: delicate pink, having a white centre spotted with rose.

Novelty: distinct; white, edged with porcelain-blue.

Ferdinand: French-white, the three lower segments violet-blue.

Grand Sultan: large, pink with white throat.

Marie: pure white, with large brilliant carmine blotch; finer than *Marie Van Houtte.*

Souvenir de Borsig: large, rose, with crimson blotch on lower segments.

Wilsoni: large, blush-white, with rosy carmine blotch.

Plate VI

Gesneria. Cinnabarina.

Jas. Andrews Delt. & Zinco

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PLATE VI.

GESNERA (NÆGELIA) CINNABARINA.

THIS showy species of *Gesnera* was introduced from the southern part of Mexico, by the enterprising traveller Ghiesbrecht, to the collection of M. Linden of Brussels, by whom it has been named. It is now being distributed in England by Messrs. E. G. Henderson and Son, of St. John's Wood.

It has a general relationship and resemblance to the well-known and beautiful *Gesnera zebrina*, but it is quite distinct from that kind, and will, if possible, prove still more ornamental, being dwarfer in habit, more profuse in the production of flowers, and of a richer and more brilliant tone of colour both in the foliage and flowers. The latter indeed, of a peculiar tint of vermilion scarlet, are almost of dazzling brilliancy under the influence of bright sunlight; and the foliage being clothed with coloured hairs, has a rich reddish-bronzy shade on its velvety surface. Even moderate-sized plants develope large dense masses of their brilliant scarlet flower tubes. It will form a magnificent winter and early spring-flowering stove plant; the imported plants blossomed indeed for the first time in February and March of the present year, but from observation of the habit of the plant, and its relationship to other winter-flowering species we feel perfectly warranted in stating that it will flower through the late autumnal months, up to the period we have named; and through this season of the year will be found pre-eminently beautiful as an object for the decoration of warm conservatories.

G. cinnabarina is a perennial stove plant, having subterraneous scaly tubers, erect annual herbaceous stems, and large ovate-cordate, rugose, coarsely and doubly crenated leaves. The surface of the stems and petioles and of the leaves is clothed with soft rich purple conspicuous hairs, producing a coarse velvet-like surface. The stems terminate in long narrow erect racemes, shorter lateral racemes branching out from the axils of some of the upper leaves. The flowers are rather short-stalked, large, tubular, swollen beneath, and divided at the mouth into five spreading segments, of which the two forming the upper lip appear to be smaller and more ovate than the others forming the lower lip. Unfortunately the flowers were not sufficiently examined when in a perfect state, so that they cannot be exactly described. The colour, as already mentioned, is a distinct tint of orange-scarlet of great brilliancy.

The soil for *Gesneras* should consist of light fibrous loam, turfy peat, and leaf-mould in equal parts, with a very free admixture of pure sand. This should be used in the rough fibry condition, merely broken by the hand, without sifting, in order that it may be light and open in texture. The tuberous-rooted sorts should have the soil somewhat lighter than the shrubby kinds.

As to their habits and culture, the choicer kinds of *Gesnera* may be classed in three sections, as follows, the selection here given being moreover adapted to afford a continuous display of blossoms throughout the year:—

Section I.—The species here included, of which the subject of the present plate is one, have the habit and style of growth of *G. zebrina;* that is to say, they have scaly fleshy achimenes-like tubers, and annual stems; and they require free culture in a warm moist atmosphere. The tubers may, if desired, be started into growth at intervals, to afford a succession of flowers, and after flowering should be kept comparatively dry in order to rest them, before the next growing season. To this section, in addition to *G. cinnabarina*, belong—

G. splendidissima. A hybrid variety raised in the German gardens. It has handsome velvet-surfaced leaves, so thickly clothed with crimson hairs as to render the plant (apart from its floral interest) as ornamental as any of the picturesque-leaved plants now so much sought after. The flowers, both in this and the following kind, are richly varied with beautiful yellow, orange, and scarlet tints.

G. zebrina excelsa. This is readily distinguished by its ample bright green velvety foliage, which is beaufully veined and shaded with dark red.

Section II.—This includes those highly ornamental summer-flowering species so often seen at the horticultural exhibitions, and which, when produced in a high state of culture, are almost unrivalled for massive beauty and brilliancy of effect, in consequence of their large and gorgeous panicles of, in many cases, intensely bright and dazzling scarlet flowers. They have large fleshy tubers, which require a season of rest, and liberal culture when started into growth. The best kinds of this group are—

G. Blassii. A noble species of vigorous, yet graceful habit; its stems, if only partially supported above the edge of its own vase or pot, will display the very large magnificent pendent panicles of scarlet tubes to great advantage.

G. Merckii. One of the finest species for horticultural competitions, producing long terminal spike-like racemes of rich crimson-scarlet flowers.

G. Doncklaari. A fine plant, distinct in habit, and comparatively dwarf. It has large dark velvety leaves, and erect racemes of from ten to twenty large open tubular flowers, of a brilliant rosy-crimson tint, beautifully relieved by a whitish throat. It is one of the finest in cultivation.

G. Miellezi. A desirable and ornamental variety, with broad gloxinia-like foliage, and numerous large open tubular blossoms, of a lilac-purple, with white throat. The comparatively dwarf and compact habit, in connection with its dense mass of bloom, render it a fine object, either for individual display, or for artistic arrangement in a group.

G. purpurea-macrantha. A distinct novel and beautiful species, of compact dwarf habit, with large handsome, light green, velvety leaves, the upper ones generally depressed and spreading; the very large and remarkably brilliant scarlet flowers, borne just above them, have not inaptly been compared to a crimson coronet reposing on a cushion of green velvet.

G. coruscans. This has light green velvety leaves, and brilliant scarlet tubular flowers, after the manner of *G. splendens* and *G. Cooperii.*

Section III.—The plants belonging to this group are of a permanently shrubby branching habit. They will be further noticed in our remarks on *G. densiflora* (Plate VIII.), which belongs to this section, as also does *G. elongata*, the *oblongata* of some gardens.

In addition to the fine species mentioned in the foregoing observations, there are several other distinct species and varieties, diverse in colour, or otherwise different, which, although of ornamental character, can only be regarded as very much inferior to those enumerated above, either as regards brilliancy of colour, or in their adaptation to ornamental purposes. Amongst those species which are thus superseded, or which from other causes are not recommended, may be mentioned the following:—*G. picta, G. Seemanni, G. faucialis, G. Suttoni, G. Schiedeana, G. longifolia, G. Cooperi, G. polyantha, G. discolor, G. elliptica lutea,* and *G. tubiflora.*

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PLATE VII.

HYACINTH: DUKE OF WELLINGTON.

NEW Hyacinths, unlike new varieties of many other popular flowers, increase slowly, and furnish but tardily the means of supplying the demands of bulb cultivators, so that a variety of merit is some time before it can come into general cultivation. That which is represented in the accompanying plate is certainly one of the most perfect and beautiful varieties known, and may be regarded as the model of a fine double Hyacinth. It has been but recently introduced to English collections from the Dutch gardens, and is found to be a variety of vigorous constitution, and a free bloomer. Its flowers are of a delicate flesh-colour, and quite double.

The most suitable compost for the cultivation of Hyacinths in pots consists of the following ingredients, intimately blended:—two parts leaf-mould, or, what is better, rotted manure and leaves; one part loam; and one part silver or river sand. As in all other cases, the materials should be in the intermediate condition between wet and dry, when mixed for use, so that the compost may admit of being firmly pressed without being made adhesive.

The season for planting, is from September onwards. When planted in pots, two-thirds of the bulb should be left above the surface of the soil. The size of the pots used may be regulated by the purposes for which the plants are required, as the quantity of soil supplied to the roots is of less importance than a regular and sufficient supply of moisture, so that if very small pots are required for particular purposes, they may be used, care being taken during the growth of the plant that the roots do not want water; five-inch pots (forty-eights) for one bulb, and six-inch pots (thirty-twos) for two or three bulbs are suitable sizes for general use. We may remark that the effect of planting two or three bulbs together, is so much superior to that produced by single bulbs, that except for special purposes, few persons having once adopted the former, would be satisfied with the latter plan. When small pots are used, they should be kept plunged to the rim in a bed of decayed tan, or similar material, as a constant protection to the roots.

In the process of potting, the soil should be pressed moderately firm, but should not be too much consolidated. After planting, the pots are best set out of doors, and well watered so as to ensure that the soil becomes thoroughly moistened, for unless this is attended to, the roots as they commence growing do not readily penetrate, and the bulbs become thrown on one side, so that the after-growth is disfigured; this is especially liable to occur, when the soil besides being dry is also very firmly pressed down. When the water has passed away, the bulbs are to be covered over to a depth of six inches, with old rotted tan or leaves, under which they are to remain until the pots become filled with roots, and the young leaves have shot out an inch or so in height. Then, after clearing away all the particles of earth from the crowns and young leaves, so that they may be fully exposed to light, the pots are to be removed to a cold house or frame, where they remain till they are required for forcing. Such plants introduced to a warm atmosphere in succession will furnish a supply of bloom for the decoration of the conservatory or the window, from December till May. The actual period when they reach the blooming condition, will depend, of course, very much

on the time when they are removed to a warm temperature, and the amount of forcing to which they are subjected. Gentle excitement, be it remembered, is in all cases preferable to hard forcing. Those bulbs which are potted by the beginning of September may be had in bloom about Christmas; while others potted about the end of September or beginning of October, will bloom about March, if assisted with a slight increase of temperature. They are best grown as near as possible to the glass, and with all the ventilation that can be afforded them; these two agencies acting on the plants so as to secure short stiff healthy foliage. The pots should be examined from time to time after potting, in order that when they become tolerably filled with roots, the bulbs may be removed from beneath the plunging material before their leaves and young stems have much grown. In any case, the leaves should not be suffered to grow more than an inch or two in length, while they remain in this position. Those plants which grow on slowly without the agency of artificial heat, may be expected to produce the most vigorous, perfect, and highly-coloured trusses of bloom.

When the bulbs are planted in glasses, *their base only* should touch the water. The glasses should, for a time, be placed in a dark cool place, until the roots have attained a considerable length, so that when brought out and exposed to the light, the roots may be capable of affording a good supply of nourishment to the young leaves and stems. From time to time the bulbs should be examined, and all superfluous or decaying matters which occasionally form about their base, should be carefully cleared away. No other attention is required beyond an occasional supply of fresh water, which will be oftener needed as the plants attain full growth, and approach the flowering condition. It may be hardly necessary to mention that neither glasses nor pots should be kept on the mantelpiece, as the heat from the fire is inimical to the vigorous development and duration of the flowers. They should, when grown in the dwelling-house, be kept all day at the window, where they may enjoy the full light, and a cool room is preferable, but it is proper to remove them from the window at night, during severe frosty periods. Rain or soft water should always be employed.

In making a selection of varieties from the dealers' lists, it is always the better plan to include those only which, having been previously grown, have been proved to produce good flowers; not allowing other kinds to be substituted to suit the vendor's convenience. This should more than ever be insisted on, as many inferior varieties are now offered by the Dutch wholesale growers, at a cheap rate. Some of the old favourite kinds are beginning to degenerate; and as it occupies many years to acquire a large stock of any new variety, so when once a variety is brought into cultivation in the Dutch gardens, it is many years before the growers can be induced to discard it, though it may be known to be worthless in comparison with other varieties of the same class. This, perhaps, is not surprising, so long as there are to be found in England purchasers of large quantities of these cheap inferior bulbs.

The single-flowered varieties, though by many supposed to be inferior to double ones, are in reality not so. Indeed it is a question whether for vigour of constitution, and fullness of truss, the single kinds are not superior to the double, for though there are fewer segments to each individual flower in the former, yet the truss or spike consists of two or three times the number of pips or flowers, and in most instances the trusses produced are much larger. The single-flowered kinds all succeed well in glasses.

Few flowers are more effective for beds in the flower garden during the latter part of April and the beginning of May, than the distinct-coloured varieties of Hyacinth. For this purpose, a few only of distinct and decided colours should be chosen; these should be planted in masses or in distinct beds of the same colour and kind. They require a light, rich, *thoroughly drained* soil, and it may be necessary to provide this to a depth of one foot or more, by removing the natural soil and substituting a proper compost. One of the most suitable composts for beds would be formed by mixed equal parts of (1) the soil of turves of sandy loam, cut very thin, and perfectly rotted; (2) thoroughly decayed cow-manure, or, in default of this, hotbed manure and leaves well decayed; and (3) river or sea sand. The beds should be prepared in September or early in October in fine dry weather, and the bulbs

planted about six inches beneath the surface. During the winter and early spring any devices may be resorted to, to prevent the soil becoming saturated by rains, or seriously disturbed by frosts, for which purposes a waterproof covering cloth may be found the most effective, though a thick mulching of any of the ordinary protecting materials should be sufficient. Any coverings of these kinds must of course be removed as soon as the leaves begin to burst through the soil; after which a slight shelter against early spring frosts afforded to the foliage, and against dashing rains afforded to the flowers, will be repaid by the results. The bulbs are to be removed when the leaves have decayed, previously to which, in a well-ordered garden, a succession of flowers will have been introduced.

The following low-priced varieties of good quality are recommended for out-door planting:—

HYACINTHS FOR BEDS OR BORDERS.

Aimable Rosette: pink; nice truss; dwarf.
Baron von Tuyll: dark blue; large close spike.
Diebitsch Sabalkanski: bright rich red; full spike; dwarf.
Fleur d'Or: canary yellow; close spike.
King of Holland: pale orange; close spike.
La Candeur: pure white; dwarf.
La Vestale: pure white; dwarf.
L'Ami du cœur: bright carmine; a free bloomer.
Mars: dark red; full spike.
Nimrod: rich pale blue; large spike.
Passetout: porcelain blue; dwarf.
Porcelain Sceptre: sky blue; fine spike.
Prince of Waterloo: white; large spike.
Voltaire: white; large spike.
Waterloo: deep red; free bloomer.

The following selection for pot culture, or for glasses, includes most of the finest kinds in cultivation:—

SINGLE-FLOWERED HYACINTHS.

Alida Jacobæa: deep canary yellow; close truss, good.
Amiable Rosette: pink; very pretty and distinct, forming a nice truss; dwarf.
Anna Polowna: creamy white; fine long truss, extra fine.
Baron Van Tuyll: dark blue; large, fine truss; stout habit.
Charles Dickens: dark porcelain blue; close truss and large; tall.
Diebitsch Sabalkanski: bright rich red; very large and full truss; dwarf, extra fine.
Fleur d'Or: deep canary yellow; close truss; good.
Grand Lilas: porcelain edged with white; large compact truss, robust habit; a splendid variety.
Grand Vainqueur: pure white; close fine truss; one of the finest.
Grand Vedette: pale porcelain blue, changing to white in the centre; extra large bells, robust habit; a splendid variety.
Heroine: pale yellow tipped with green; close truss; dwarf habit, good.
La Candeur: pure white; close truss; dwarf habit, good.
La Dame du Lac: bright pink, tipped with green, after a time changing to a most beautiful and pleasing colour.
L'Unique: violet lavender; very distinct colour from any other.
Madame Hodson: pink with red stripe in each segment; after a time it becomes quite variegated; a useful variety.
Mimosa: blackish purple; one of the best.
Mont Blanc: pure white, forming a splendid truss.
Nimrod: rich porcelain blue; large and close truss; dwarf, extra fine.
Porcelain Sceptre: sky-blue tube, pale porcelain in the centre of the segments, mottled with blue; fine truss; large and of robust habit.
Prince Albert: blackish purple, extra fine.
Prince Oscar: rich porcelain blue; a striped flower, distinct; long truss, extra fine.
Richardson: blush white; large bells, large truss, robust habit, fine.
Robert Steiger: deep rich red; close truss, extra fine.
Robinson: porcelain tube with blue sepals and white centre; a distinct and beautiful colour; robust habit.
Sans Souci: rosy red tube with pink petals, which after a time change to cinnamon red, striped with white; very novel and distinct in colour.
Sphæra Mundi: white with large blue centre, large bells; very late.
Sultana Favourite: blush white, with pink stripe up each segment, tube pink; good truss; distinct and fine.
Tubiflora: blush white with violet tube, extra large bells; fine truss; one of the best.
William the First: blackish violet; good.

DOUBLE-FLOWERED HYACINTHS.

Bouquet Orange: reddish orange tipped with green; dwarf habit, good.

Bouquet Royale: blush pink with red eye, pleasing; fine truss.

Comte de St. Priest: pale porcelain and white, with violet eye; dwarf and of robust habit, good.

Honneur d' Amsterdam: a very large and double flower; blush pink; on first opening the flowers are tipped with green.

Keizer Alexander: violet blue; full and very double flowers, fine.

La Tour d' Auvergne: creamy white; fine large truss, and stout habit.

Laurens Koster: violet blue; very double, and produces a large truss; an extra fine variety.

Madame Marmont: pale lavender; a fine and very pretty flower.

Mathilde: blush white with purple eye; large bells; fine.

Milton: rich bright red; dwarf habit.

Netherlands Glory: pinkish red tipped with green; at times blush and pink striped; a curious and distinct flower.

Ne plus Ultra: pure white with purple eye; large bells; a pretty style of flower.

Othello: blackish violet, the young flowers tipped with green; distinct and pretty.

Pasquin: delicate pale porcelain blue and white, with dark violet centre; fine bells; very pretty and distinct.

Prince of Wales: blush, very double, fine.

Prince of Waterloo: blush white; large and very double; flowers in large trusses; fine habit.

Pyrene: pure white, tipped with bright green; fine and distinct.

Queen of England: white, with bright pink eye; pretty.

Van Speyk: pale blue with purple stripes; fine large bells; a late flower.

Waterloo: dark red; one of the best.

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Nº 1. Gesneria Densiflora.
2. Monochœtum Ensiferum.

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PLATE VIII.

GESNERA (MOUSSONIA) DENSIFLORA.

(Fig. 1.)

THIS fine species of *Gesnera,* belongs to the third section of the genus, referred to under Plate VI., the peculiarity of which consists in the permanent sub-shrubby branching habit of the plants, as illustrated in the well-known *G. elongata.*

G. densiflora was introduced by M. Linden of Brussels, along with *G. cinnabarina,* and is now entirely in the hands of Messrs. E. G. Henderson and Son, of St. John's Wood. It is a stoutish growing shrubby plant, with pale-green stems and leaf-stalks, the leaves themselves being of a deeper velvety green, the plant everywhere clothed with soft close hairs. On the stronger vigorous stems the leaves are larger, of an elongated ovate outline, acute, serrated, the hairs especially those of the stem, leaf-stalks, and under surface of the veins, more or less appressed; while the weaker shoots are more compact, their leaves shorter, elliptic-ovate, and the hairs spreading. The flowers grow in bunches of four or six together on a common footstalk two or three inches long, from the axils of the upper leaves; pedicels light red; calyx lobes short; corolla tubular, ventricose, about an inch and one-fourth long, bright orange-scarlet, paler on the least exposed side, the throat contracted, the limb small spreading or somewhat reflexed, and divided into five nearly equal roundish segments, the two forming the upper lip plain coloured, the three lower conspicuously dotted with yellow; the interior of the tube yellow. The flowers are produced from December to March.

Though having the general character of *G. elongata,* this plant is far more ornamental, having the flowers altogether more brilliant, and more abundantly produced, on plants of stouter and more vigorous habit. Perhaps no other *Gesnera* equals this for general usefulness, on account of these qualities, coupled with its free growth and easy culture. With ordinary care in its treatment, it will equal any winter-flowering stove plant now in cultivation.

The species of the habit of the present plant, do not require after their blooming period a cessation of growth, or season of rest, of so decided a character, as the species of the other sections referred to under Plate VI; and this is the key to the principal differences required in their treatment. What they do require is a renewal or re-accumulation of their vigour, by a partial pruning away of exhausted blooming branches or weak attenuated shoots; by the same means also securing compactness of growth. These plants readily accommodate themselves to the temperature of a warm pit or frame (without artificial heat) during the summer months. This should be considered the special season for securing *vigorous growth* solely; afterwards the plants may be encouraged to unfold their flowers in the more stimulating atmosphere of a warm conservatory or hothouse. The most familiar species of this group at the present time, is the following, which though inferior to *G. densiflora,* is a very ornamental plant, and a favourite with cultivators:—

G. elongata (*Smithii*): a well-known and universal favourite in all collections where a succession of flowers is required in winter. It is neat in habit, of easy culture, and, under skilful treatment, forms a beautiful and graceful object, its growth bending beneath the profusion of axillary clusters of shaded orange-red flowers. It is known in many collections under the name of *oblongata.*

MONOCHÆTUM ENSIFERUM (*Naudin*).

(Fig. 2.)

This charming plant was discovered by M. Ghiesbrecht in the province of Oaxaca, in Mexico, and was by him sent to M. Linden of Brussels, from whom Messrs. E. G. Henderson and Son, of St. John's Wood, have obtained the plants to be distributed in this country.

Monochætum ensiferum forms a remarkably neat, free-growing, compact, densely-branched shrub, with a tendency to pyramidal growth in young vigorous plants, more spreading when older. The young branches are bluntly quadrangular, tinged with reddish purple. Leaves smooth, darkish green, opposite, ovato-lanceolate, finely serrated, an inch or rather more in length. Flowers terminating the twiggy shoots and laterals, solitary but numerous and consequently effective, bright rose-colour, large in comparison with the foliage, being about the size of the blossoms of a *Chironia;* calyx limb of four short lobes; corolla of four roundish-obovate, somewhat concave petals, forming a shallow expanded cup; stamens with red filaments, eight in number, four of them furnished with a large conspicuous spur-like expansion, which is of a deep scarlet, contrasting finely with the corolla, and conspicuous after the latter has fallen away.

This gay little shrub, will no doubt prove extremely valuable for flowering through the winter and early spring months, and probably at other seasons. Being a profuse flowerer it will make one of the most useful of pot plants for decorative purposes, ranking in beauty with *Pleroma elegans*, another charming plant of the same family of *Melastomaceæ*, and like that, also, it will be adapted for exhibition purposes, the plants becoming entirely covered with flowers.

It seems to be almost a hardy greenhouse plant; at least young ones grow vigorously during the summer months, in cold pits or frames in company with New Holland plants; but they may probably require a warm greenhouse to bring out their blossoms in perfection. It must become quite a popular plant.

Geranium.

1. Napoleon III.
2. Empress Eugenie.
3. Guillaume Sovereyns.
4. Pescatore.

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PLATE IX.

NEW PELARGONIUMS.

IN the accompanying group are represented some novel and distinct varieties of Pelargonium, of which those having five-spotted flowers represent a class but recently brought into cultivation. The flowers of this latter character were first obtained by M. Odier, an amateur cultivator residing in the neighbourhood of Paris. After having been from year to year improved under his own supervision, some of his varieties were dispersed by M. Miellez, nurseryman, at Lille. During the last two or three years, however, other continental nurserymen have sent out varieties raised in M. Odier's garden; and in England, where perfection of form is so much more assiduously sought after, the hybridisers have been making rapid strides, so that doubtless in a few years the foreign kinds will be quite superseded. The varieties we have figured, of which Nos. 1, 3, and 4 belong to the above-named spotted class, are as follows:—

Fig. 1. NAPOLEON III.—Deep salmon rose; the upper petals nearly covered with dark rich crimson, the lower petals with a dense elongated spot of crimson.

Fig. 2. EMPRESS EUGENIE.—A fine pure white-ground variety raised by the late W. H. Story, Esq. The upper petals bear a beautiful cherry-coloured cloud-like spot, which distinguishes it from all others of its class. The variety is one of remarkably chaste appearance, and is not surpassed in quality on account of the remarkable combination of good properties it possesses—excellence of habit, distinctness of foliage, prolificacy of flower, massiveness of truss, and purity of colour, together with the perfect outline and density of substance, which renders it a first-rate variety for competition.

Fig. 3. GUILLAUME SOVEREYNS.—Bright violet-shaded rose; the upper petals dark-blotched, the lower with a round spot of dark maroon; a distinct and novel colour.

Fig. 4. PESCATOREI.—Rich brilliant salmon, the lower petals having a large dense roundish blotch; centre light.

The bluish tint which occurs in flowers like *Guillaume Sovereyns,* was before quite unknown in English collections; our plate, indeed does not well represent it, on account of the difficulty of reproducing it on paper, the colour of the flower being much more brilliant. *Pescatorei* is of a lovely colour, and would be selected immediately from a whole housefull of plants; while *Napoleon III.* is of a peculiar deep salmon colour.

Among the varieties recommended in the annexed list, are many flowers very striking in colour, some, indeed, like Guillaume Sovereyns, being of quite new tints distinct from anything met with among the English varieties. The spots on the lower petals form a distinguishing feature in many of these foreign varieties, this spotting taking different forms; in some, a round spot occurs in the centre of the petal; in others, an elongated blotch extends over two-thirds of the surface of the petal; and in some, which represent a very beautiful form of marking, a long narrow feathery blotch is produced, and generally margined with pure white. The blotches are in some instances uniformly dense in colour, and in others shade off gradually outwards from a darker to a lighter tint.

It has long been a complaint among amateurs, that there is so much sameness in the varieties produced year after year at the exhibitions, to the brilliancy of which the Pelargonium largely contributes; and this objection has

been well founded. Now, however, there is an indication of improvement in this respect, to which the brilliant colours and the novel markings of the new French varieties will largely contribute.

The proper compost for Pelargoniums, consists of a mixture of two parts good turfy loam, one part leaf-mould, one part well decomposed cow-dung, a good proportion of silver sand being intermingled. The pots must be thoroughly drained with potsherds broken small. One essential point in their cultivation, is that after flowering before they are cut down, as is necessary annually in order to keep the plants compact and bushy, the quantity of water they receive must be diminished, so that the stems may be thoroughly hardened and ripened before they are cut. This state of comparative dryness is to be maintained until the young shoots have pushed out a little, so as to bring the roots again into activity. In other respects their culture is so well known, that it need not here be enlarged on.

The following selection comprises the most interesting additional varieties of—

SPOTTED-FLOWERED AND OTHER FRENCH PELARGONIUMS.

Alexander: deep maroon upper petals; orange scarlet lower petals with crimson spot; a very showy and rich flower.

Aspasie: bright bluish violet, light centre; fine.

Alphonse Leroy: bright rich scarlet; lower petals with maroon spot; upper petals crimson-maroon.

Brilliant: brilliant scarlet-orange, light centre.

Comte de Morny: bright rich ruby crimson, light centre.

Conspicuum: rose, all five petals marked with a velvety maroon spot; well formed.

Diamant: orange-rose, mixed with white and scarlet.

Géant des Batailles: fine large flower of rich colour.

Glow-worm: blush rose lower petals, with feathered spot of intense scarlet surrounded with white.

Hendersoni: pink lower petals, with feathered spot of intense crimson; white centre.

Hortense: pale pink with deep crimson blotch; good truss.

L'Avenir: scarlet, striped with white.

La Belle Alliance: salmon with feathered crimson spot, light centre; fine form.

Le Titien: rich scarlet-crimson, white centre; fine.

Lord Raglan: rose with large dense spot on lower petals; fine.

Madame Furtado: blush-tinted lower petals, with clear crimson spot.

Madame Heine: white lower petals with plum spot, good truss.

Madame Laffay: lower petals with dense spot of plum.

Madame Martiné: upper petals maroon blotch with broad margin of salmon; lower petals nicely spotted with crimson; fine.

Madame Pescatore: lower petals orange-rose, with crimson blotch, and a light centre to petals giving a distinct striped appearance.

Madame Place: petals fringed; upper crimson, rose, and white; lower white, with delicate spot of crimson.

Modèle: velvety blue violet, distinct; fine colour.

Mr. Beck: bright rose lower petals with maroon spot, white centre; large fine formed flower.

Mr. Hoyle: rosy pink with maroon spot on all five petals; good form.

Ne plus ultra: rich scarlet crimson, white centre; fine.

Perrugino: blush-pink, with large deep blotch on lower petals; fine truss; very showy.

Rollissoni: rosy-pink, crimson spot, fine.

Rubens: pink, with feathery spot on lower petals; white centre.

Triomphe d'Esquermes: very fine and distinct; rich blue violet.

Verschaffelti: salmon, veined and spotted with crimson; large flower and fine truss.

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1. Tapina (achimenes) splendens
2. Petunia Inimitable
3. " Surpasse Dr Andry.

C.C. Sewarby del.

Printed by C.F. Cheffins & Sons, Litho. London.

PLATE X.

TAPINA (ACHIMENES) SPLENDENS.

(Fig. 1.)

THIS beautiful little evergreen trailing perennial herb, was found by M. Triana, in New Grenada, in the previously unexplored tract extending through the extensive country between the Meta and Guaviare. It was introduced by him to the establishment of M. Linden; and is to be distributed in England by Messrs. E. G. Henderson and Son, of St. John's Wood.

The plant produces short erect herbaceous stems, furnished with opposite stalked, oval, hairy, coarsely-serrated leaves, from the axils of which issue trailing or dependent stems, which become branched, and have their leaves opposite; they are of a bright shining green, paler beneath, two to three inches long, and covered sparingly with coarse hairs which have a swollen elevated base. The flowers grow several from the axils of the leaves as though on short arrested branches, small leaves being produced among them and the additional flowers rising from their axils; pedicels two to three inches long, hairy, elevating the flowers conspicuously above the ample foliage; calyx five-lobed, the lobes linear acute, hairy; corolla a beautiful resplendent scarlet, the tube an inch long, hairy and paler externally, gibbous and with a thickened ring at the upper base, the limb spreading, upwards of an inch in diameter, with five rotundate segments having dentate margins; the throat gemmate with crowded red glandular warts; stamens four, didynamous; stigma thickened two-cleft and decurved; ovary silky with two smooth scales (glands) at the upper base.

Being a plant of neat trailing habit, and easily cultivated in a stove, displaying freely its intensely rich scarlet blossoms, it will be a welcome addition for decorative purposes in stoves and warm conservatories, adapted by its habit for suspension in portable ornamental fancy wire baskets. From the pliant nature of its stems, it will readily assume a gracefully dependent outline on trellis work, or will adapt itself to artistical drawing-room vases. It may be had in flower from October through the winter months when trailing plants are so valuable for planting in baskets. It seems, indeed, to be a plant which may be had in bloom almost continuously, as it blossoms freely during the summer months, but of course requires occasional renewal.

The aspect of this species in some respect resembles that of *Achimenes cupreata,* but it very far exceeds that plant in beauty, differing in the bright glossy green of its sparsely hairy leaves, and in the almost unequalled brilliancy of its larger flowers.

NEW PETUNIAS.

(Figs. 2 and 3.)

The Petunia has been much improved and varied by hybridising, in which the continental cultivators have been very successful. We are indebted to them for the two varieties figured on the accompanying plate, as well as for

the double-flowered *P. imperialis*, the latter having been much improved in the hands of the florist, as the forthcoming season will bear witness. The flaked or striped flowered *Petunias* were introduced two or three years since to the English gardens, and already number many varieties.

Fig. 2. Inimitable.—Purple, with pure white marginal blotches, more or less extended down the segments of the corolla.

Fig. 3. Surpasse Dr. Andry.—Flowers flaked with white and purplish crimson.

The variety *Inimitable* is the first which has exhibited this novel and curious mode of marking, the pure white blotches on the purple ground producing a most strikingly ornamental flower—quite unlike that of any other cultivated plant. The habit of this variety is dwarf, and it is a free continuous bloomer; and hence forms a very useful and ornamental plant.

One of the finest of the striped class is *Surpasse Dr. Andry*, on account of the regularity of the markings of white and purplish-crimson. The habit of this too is dwarf, and it is a free bloomer. A fault inherent in this striped class, often causing disappointment, more frequently noticed in some varieties than in others, is the sporting of the flowers; indeed, sometimes the whole plant will give one-coloured flowers, white, crimson, or other shades distinct from the original, yet the same plant will, after a time, or in the following season, produce flowers as beautifully flaked as before. Though a plant may therefore change, it is always advisable to retain it, even though it may produce such flowers as would almost induce the cultivator to destroy it altogether. The cause of this variability is not certainly ascertained, but the freak is oftener exhibited when the plants are planted out, and are making rapid and vigorous growth; plants that have been shifted from small pots into very large ones are also liable to change. We should, therefore, recommend never to over-pot or encourage luxuriant growth, but rather to confine or starve the roots. Doubtless a well-prepared judiciously intermixed soil, would improve the condition of the flowers. In propagating young plants, it should be a rule to select cuttings from those shoots which produce the best marked flowers; and by following up this practice, the habit of producing striped flowers may eventually become better fixed.

The following is a list of distinct and choice varieties of Petunia:—

Cœrulescens grandiflora: grey white, with large centre of deep violet; large flower.

Charles de Rosamini: bright crimson, good habit; free bloomer, and fine bedder.

Countess of Ellesmere: deep rosy crimson, white throat; good form, a fine bedder.

Duchess de Brabant: crimson, with margin of rose.

Gem of Suffolk: distinct variegated foliage, with large bright crimson flowers.

General Canrobert: rose, deeply veined with crimson, dark throat.

General Cavaignac: rosy crimson, with narrow margin of green.

Gloire de France: violet, flaked with white; large flower.

Hermione: a distinct flower; blush white, covered with bright purple spots and stripes.

La Fraicheur: large flower; peach rose colour.

Madame la Comtesse Gerard: dark centre, distinct; a fine flower.

Madame L. Courant: blush, margined and mottled with rose, and having a circle of violet veining round the margin of the throat.

Majestic: violet crimson margined and veined with rose; fine form.

Marquise de la Fertè: bright rose with pure white throat; fine habit, dwarf and compact, and one of the very best for bedding.

M. Joseph Baumann: large pale rose with rich carmine centre, and veining off towards the edge; good form.

M. Laurentius: bright rose, veined and mottled carmine, white throat; fine and distinct.

M. Fatés: carmine rose, pure white throat; distinct and fine.

Mrs. Cutbush: distinct variegated foliage, with white flowers.

Souvenir: white and crimson flaked.

Springfield Purple: deep velvety crimson shaded with purple.

Regenia Rex.

[illegible] del. [illegible] gen.

Printed by C. F. Cuffins & Sons, London

PLATE XI.

BEGONIA REX.

THE beautiful variegated-leaved *Begonia*, represented in our plate, was imported from India, and sold at Mr. Stevens's auction-rooms, during the past year, to M. Linden of Brussels. Subsequently the Messrs. Rollisson of Tooting, purchased from M. Linden a portion of the plants, together with the exclusive right of the primary distribution of the species, in Great Britain. The accompanying figure was made by Mr. Andrews from one of Messrs. Rollisson's specimens. The plant flowers freely, but the foliage is its attractive feature, and that is very beautiful.

B. Rex: tuberous, without apparent stem; leaves obliquely ovate, shortly acuminate, glossy and somewhat bullate, a few coarse hairs scattered near the margin; petiole green, short, fleshy, bearing a few coarse hairs; scape smooth, reddish, about equalling the leaves, bearing a simple cyme of about five flesh-coloured flowers; staminate flowers of two oblong-ovate blunt sepaline, and two narrower obovate petaline divisions, and a stipitate head of stamens, of which the upper are elongated and beaked; pistillate flowers smaller, of six oblong divisions, and having (in the flowers examined) a pair of spirally-contorted two-lobed stigmas; ovary deflexed, two-celled, three-angled, the two lateral angles (perfect cells) with a broad herbaceous wing, the dorsal with an obtuse spur-like wing from its base; placentas double, the dorsal two-lobed.

The upper surface of the leaves is of a purple-tinted olive-green at the centre, and for a space of about an inch wide at the margin, a broad irregular band of grayish or silvery green intervening, and extending to the point; the under surface opposite the darker portions is of a subdued purplish tint, and light green opposite the paler parts, traversed by purple veins.—M.

Begonias have of late years become numerous and fashionable, and they afford very great variety. Some of the species, having brilliantly-coloured or delicately-tinted long-continuing blossoms, are of considerable importance for the decoration of the conservatory and hothouse at different periods of the year; but many are merely plants of botanical interest. For the purposes of the cultivator, they may be conveniently divided into three sections:—1. Picturesque or variegated-leaved; 2. Summer and autumn flowering; 3. Winter and spring flowering. The best of these are the following:—

§ 1. PICTURESQUE OR VARIEGATED-LEAVED BEGONIAS.

B. Rex: already described.

B. splendida: highly ornamental, sub-herbaceous, of vigorous habit, twelve to eighteen inches high, with large foliage, diversely oblong-ovate, inclining to heart-shaped, with marginal lobes. The most remarkable feature of this fine species consists in the exquisitely-rich crimson tint displayed in the early growth of the leaves; this arises from the brilliantly-coloured hairs with which they are clothed. The veins of the leaves beneath are also, when young, covered with similar hairs.

B. splendida argentea: the large elegantly-marked leaves of this plant are obliquely heart-shaped. With the exception of narrow green spaces running from the base towards the margin along the principal veins, the remaining surface presents an unbroken field of silvery green, richly tinted or bronzed with an under coppery-crimson hue, deepening towards the margin, and sprinkled over with numerous short crimson velvety hairs. The under surface is of a uniform rich crimson, and, in the younger stages of growth, all the stronger veins are densely set with crimson hairs.

B. Thwaitesii: neat, compact, sub-herbaceous, six to nine inches high, with short fleshy, decumbent stems. The leaves are medium-sized, heart-shaped,

of a purplish-green and crimson, richly blended, clothed on both surfaces with reddish-purple velvety hairs, and blotched with white on the upper side. The delicate white blossoms, suffused with red, form a beautiful contrast with the darker colour of the leaves.

B. Griffithii (sometimes called *B. picta*): in habit like the preceding, neat, dwarf, compact, sub-herbaceous, but of more vigorous habit, six to twelve inches high. The leaves are obliquely heart-shaped, having a velvety surface, erect, and, whilst young, elegantly tinged with crimson on the margins. The dark olive-green of the upper surface is finely relieved by a band of light-green encircling the broader central dark green space. The most beautiful feature in this species consists in the rich crimson marginal belt, and the broad central blotch of the under surface of the leaf, corresponding in position with the dark green of the upper surface. The plant is on this account admirably adapted for use as a decorative object in suspended vases or baskets, when the leaves can be viewed against the light.

B. xanthina Reichenheimi: short-stemmed, sub-herbaceous, six to twelve inches high. The leaves are large, obliquely cordate-ovate dark coppery-green, spotted and heavily flaked with silvery-grey, and reflecting an obscure rosy tint, when seen against a strong light. The under surface and foot-stalks are rich crimson.

B. sanguinea: distinct and ornamental, of shrubby branching habit, two to three feet high, having reddish-crimson stems, and large glossy obliquely-cordate-acuminate leaves, dark sap-green on the upper surface, and rich crimson-red on the lower. This mass of foliage, which is very rich under sun-light, is relieved by small trusses of creamy-white blossoms.

§ 2. SUMMER AND AUTUMN FLOWERING BEGONIAS.

B. Martiana: a very ornamental tuberous species, with slender, branching, herbaceous stems, one to two feet high. The foliage is neat, half heart-shaped, angular-lobed; and the flowers, which are large, and of a semi-transparent rose colour, are produced abundantly at the ends of the branches.

This extremely handsome plant requires the temperature of a forcing-house only in spring, to start its tubers into growth, after which it attains maturity, and blooms freely in a well-managed greenhouse sheltered from currents of cold air. When well cultivated, it constitutes one of the finest objects for conservatory decoration during the summer and autumn months. It forms a very beautiful and effective object, when grown in masses *i.e.* twelve or eighteen tubers, in proportionate-sized pots. The plant is increased with great facility by means of the axillary adventitious bulbs which form at its leaf-bases; these require in spring treatment similar to that given to tropical seeds, and may afterwards, at the proper season, be planted out in warm sheltered partially-raised borders, in the flower-garden, where they produce a fine display, and from whence, after the bloom and growth is over, the tubers should be raised, to be preserved in pots of dry soil, under the greenhouse stage, safe from the effects of moisture or frost, until spring.

B. Billeteri: erect, shrubby, branching, of neat habit, from one to two feet high. It has reddish-crimson stems, and diverse, ovately-oblong, or lanceolate, obscurely-lobed leaves. The blossoms, of a clear light rose, are borne in numerous short, pedunculate clusters; and, from their being produced in long succession; this forms a valuable addition to late autumnal-flowering plants.

B. prestoniensis superba: a neat summer-flowering variety, of branching, suffruticose habit, one to two feet in height. It has salmon-tinted green stems, assuming a rich crimson hue at the joints. The leaves are obliquely ovate-acuminate, with slightly-projecting toothed lobes. The very rich vermilion-tinted or light scarlet blossoms are borne in numerous slightly-drooping cymes. It is one of the finest of *Begonias*, and by superior culture forms a beautiful and effective object.

§ 3. WINTER AND SPRING FLOWERING BEGONIAS.

The most useful kinds belonging to this group, will be found noticed under Plate XIII; where also, the general culture of *Begonias* will be explained.

1. Prince Frederick William of Prussia.
2. Rose of Castille.
3. Loch Katrine.
4. Guiding Star.

Miss Sowerby delt. C.T. Rosenberg zinc.

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PLATE XII.

NEW FUCHSIAS.

THE new varieties of Fuchsia, now figured, were raised by E. Banks, Esq., who is well known as a highly successful producer of these favourite flowers. We believe they will be found to possess all the essential requisites of good flowers, in respect to form, substance, colour, and habit; thus recommending themselves to the notice of cultivators, as both desirable and suitable for decorative and competitive purposes.

Fig. 1. Prince Frederick William of Prussia.—A noble flower; tubes stout, bright carmine-red; sepals broad, equally bright, very much recurved, the extremities not reaching beyond the tube; corollas forming wide cups equal to the expanse of the sepals, opening blue, and changing to plum-colour.

Fig. 2. Rose of Castille.—An effective variety; tubes blush-white, marked with rose-coloured lines; sepals blush-tinted white, of great substance, broad, erect, diverging in a slight curve; corollas large and conspicuous, cup-shaped.

Fig. 3. Loch Katrine.—This is a very beautiful variety for general decorative purposes; sepals rich bright coral-red or crimson-scarlet, broad and recurved, finely contrasting with the very deep violet—almost black, cup-shaped corollas.

Fig. 4. Guiding Star.—This variety is free branching and drooping in habit; the flower-tubes slender, blush-tinted white; sepals broad, white, gracefully recurved; corollas cup-shaped, of a rich violet-purple colour.

The management of the Fuchsia, as a greenhouse pot-plant, is too well known to need any elucidation. We offer, rather, a few hints on the production of exhibition plants. To secure, in these, a high degree of vigour and fertility combined, strong autumn or early spring-rooted cuttings should be employed, and these stimulated into slowly-progressive growth in the early spring months, but so as to secure a closely-branched habit, the absence of which is sure evidence of defective management. But, it is to be borne in mind, that a mode of treatment, or a position as to temperature, which is perfectly adapted for the earliest growth of these specimen plants, in winter or early spring, if too long maintained, may be fatal to well-conditioned growth at a later period.

The following is a summary of the conditions required during the early growth of Fuchsias intended for competition-plants. There must be uniform, vigorous, short-jointed growth, from the very base of the small selected plants. This must be attained by placing them in a warm house or pit, well exposed to diffused light, and where thorough ventilation can be given; by a careful attention to reshifting into larger pots, as required, so as to avoid a "pot-bound" state; by maintaining a moist genial atmosphere in mild weather, this being kept up by occasional syringing, and by moistening the exposed surfaces about the plants; by using an open or porous rich soil, in which well-pulverised turfy-loam and leaf-mould (or well-decomposed manure) predominate, to the general exclusion of peat soil; by occasional syringings in early spring, using tepid water; and during advancing growth, by having recourse to more frequent syringings with pure water, at proper hours, namely, in the morning and early evening, as well as by occasional applications of manure-water in a diluted state, and modified according to the progress of the plant. When the plants have reached their full development, they may occasionally be supplied with water in feeders, as a means of maintaining vigour in the foliage and blossoms. As a necessary condition of healthy growth at all times, a dry or parched atmosphere is to be avoided; and as conducive to the production

of flowers, when they are latent through excessive vigour of growth, recourse may be had to one or more omissions of watering at night, *until* morning, freely syringing the foliage instead.

The disuse of heath-mould does not extend to the flower-garden treatment of Fuchsias, for when planted out in peat borders or beds, they acquire a more densely branched habit, and bloom more freely and until a later period, than in other soils; and such plants are, moreover, better adapted for being lifted for conservatory decoration.

The following varieties of the florists' race of Fuchsias are recommended as exhibition flowers :—

Crimson, with violet and blue corolla.—Prince Albert; Souvenir de Chiswick; Prince of Wales; Wonderful.
Crimson, with large cup-shaped violet and blue corolla.—Catherine Hayes; Charlemagne; Donna Joaquina; Tristram Shandy.
Crimson, with black-violet corolla.—Etoile du Nord; Emperor Napoleon.
Red, with double-purple corolla.—Hendersonii; Pilot; Malakhoff.
Red, with white corolla.—Mrs. Storey; Countess of Burlington; Queen Victoria.
White, with light scarlet corolla.—Queen of Hanover; Fair Diana; Royal Victoria.
White, with scarlet and crimson corolla.—England's Glory; Clio.
White and Blush-white, with violet and lavender corolla.—Venus de Medici; Silver Swan; Fairest of the Fair; Maid of Kent; Duchess of Lancaster.

Independently of the varieties of florists' Fuchsias, there are several very distinct species and varieties, which may be specially recommended for their decorative qualities. The best of these are mentioned below :—

F. corymbiflora. This is one of the most ornamental of conservatory plants, and much neglected. It forms an erect shrub, each branch terminating in a large pendent corymbose continuous-blooming panicle, of rich crimson tubular flowers. Imagine a plant consisting of a dozen or more combinations of rich leafy verdure and such massive clusters of blossoms, and no more perfect picture of vegetable beauty can be conceived.

F. corymbiflora alba is an interesting variety of the foregoing; similar in habit, but less robust; the flower-tube and sepals whitish, suffused with pink, contrasting well with the rich crimson corolla.

F. fulgens is also well adapted for conservatory decoration, and is quite distinct in style. It is robust and bushy, with broad oval leaves, and drooping racemes of long tubular light scarlet flowers, which give it a very ornamental character.

F. macrantha: a highly ornamental deciduous species, rigid and hard-wooded in habit, with long-tubular, rich rosy-crimson flowers, in large conspicuous drooping clusters. It requires vigorous growth, and a resting season, in order to develope its flowers.

F. Dominiana. This fine hybrid is robust, erect, sparingly branched, sub-evergreen; the bold effective blossoms from the axils of the leaves, consist of long crimson tubes, green-tipped sepals, and a large cup-shaped corolla. It is valuable as an autumn and winter flowering plant.

F. serratifolia multiflora: a neat semi-deciduous branching shrub, with axillary bright rosy-salmon-coloured flowers, produced during the later summer and autumn months. It is equally adapted for the conservatory or green-house, and the parterre, and requires a partial rest after each season's growth.

Of the smaller kinds, the following are distinct-featured, and very useful for planting out in detached groups, or small beds, or for vase-culture :—

F. globosa: an old but favourite kind, admirably suited for small plots or beds, on account of its small size, compact habit, and free-blooming character. It is somewhat drooping, and never becomes leafy or exuberant; and is hence well fitted for vases and baskets of medium size.

F. pumila (known as *Tom Thumb*): is, without exception, one of the most elegant and unique varieties known;—a fuchsia in miniature, it forms a perfect mass of comeliness and beauty, when loaded with its glossy coral bells. It is admirably suited for small parterres, or for margining larger plants; but vigorous plants of a year old at least are required.

F. Miellezi: is in the style of *F. microphylla*, but more robust; forming a neat, erect-branched shrub, bearing a profusion of conspicuous, violet rose-coloured expanded blossoms. It, as well as the last-mentioned, forms a very pretty small bush for pot-culture.

1. *Begonia roseo-carminata.*
2. *Petunia General Havelock.*
3. „ *Antigone.*

J. Andrews del.t C.T. Rosenberg zinco.

C.F. Cheffins & Sons, Litho

PLATE XIII.

BEGONIA ROSEO-CARMINATA.

(Fig. 1.)

THIS very ornamental variety is a hybrid, raised between *B. fuchsioides*, and *B. Ingrami*. It is a robust, erect-growing plant, of neat branching habit, having dull brownish-red stems, glossy obliquely-ovate, crenato-serrate, bright green leaves, and terminal gracefully pendent cymes of rich rosy-carmine flowers. The staminate flowers consists of four cordate ovate fleshy divisions, the two inner being smaller and carinate; and the pistillate, of five concave ovate fleshy divisions; the ovary is unequally winged; the placentas double. The flowers are produced in the early spring months. This fine addition to the shrubby-habited *Begonias* is in the hands of Messrs. Bainbridge and Hewison, nurserymen, York.

In continuation of the sketch of the more ornamental kinds of *Begonia*, given under Plate XI., where the groups of dwarf evergreen sub-herbaceous species with richly marked foliage, and the summer and autumn blooming species, are more particularly referred to; we proceed to notice the most meritorious kinds belonging to the section of

WINTER AND SPRING-FLOWERING BEGONIAS.

B. roseo-carminata: described above.

B. Saundersonii: a neat, erect, branching hybrid, of suffruticose habit. It has bright, unequal-sided, ovate-acuminate leaves, and numerous terminal and axillary pedunculate clusters of richly-shaded rosy-crimson blossoms, produced throughout the winter and spring months. It is one of the most desirable kinds for winter embellishment, on account of its succession of bloom, and is well adapted for warm conservatories.

B. fuchsioides: a well known and universally admired species, growing two to three feet or more in height, neat and densely branched in habit, inclining to a pyramidal outline. This beautiful species is one of the tallest in the genus, and may be recognised by its thickly-set, comparatively small, semi-ovate, oblique, subfalcate, serrate leaves, and numerous drooping cymes of brilliant scarlet blossoms, which, under suitable treatment, may be produced on successional plants, throughout the whole year, but are more naturally produced during the winter and early spring months.

This species, on account of the facility with which it may be made to form plants of standard or bush-like habit, from three to seven feet in height, is one of the most valuable for the decoration of lofty conservatories and spacious drawing-room entrances; and its comparative hardiness, which enables it to endure a much lower temperature than most other species, as well as its densely-branched habit, are characteristic of its fitness for these positions.

B. insignis: one of the most useful species, an old but favourite plant, growing from one to four or five feet in height; neat, erect, and branching in habit; and, by its habitual tendency to flower while of small size, well adapted for pot culture. It has glossy, half-cordate acuminate, angular-lobed, serrated leaves; and numerous large, terminal, pendent clusters of elegant, semi-transparent, rosy-tinted blossoms. A free and vigorous growing plant, blooming profusely through the mid-winter months, it is admirably adapted for decorative purposes during that period. It is able to endure the moderate temperature of a close green-house, or frame, for a considerable time after its spring or summer-made growth is completed, until returned to the warmer house for the expansion of its bloom, so that it becomes one of the most valuable plants yet known for general decorative purposes, retaining its freshness too, for a much longer period than any other plant of this class. When screened from currents of cold air, and barely protected from the influence of frost, a well-grown specimen of this kind has been preserved as an elegant window screen, in a sitting-room occasionally inhabited,

without any change of position, winter or summer, for a period of four or five years.

B. parviflora: a remarkably neat, shrubby species, forming a dwarf, erect, compact, and densely-branched bush, six to twelve or eighteen inches in height; well suited for small pots. It has numerous small, unequally-lobed leaves, succeeded by a profusion of white blossoms in mid-winter. Young, vigorous plants of spring and summer growth from cuttings, restricted to *growth* alone by uniformly pinching off the premature flower-buds until the late summer months, will bloom abundantly at a period when flowering plants are specially valuable for portable flower-baskets and bouquets. The comparatively diminutive size at which this species is found to bloom, renders it a charming little object for small vases, or for groups, in which its blossoms of snowy whiteness, standing out in relief against a darker back-ground, make it especially valuable for evening decoration, or drawing-room embellishment.

B. coccinea: a winter and early spring-flowering species, one to two feet or more in height; stout, firm, branching in habit; with succulent, bronzy-tinted, obliquely-ovate leaves; and somewhat drooping clusters of bright scarlet blossoms, borne principally during the early spring months. It thus forms a useful succession plant to *B. insignis.*

B. manicata: a large well-known species, one to two feet in height when in flower; having short, gross stems supporting large, spreading, bright green, oblique-sided, heart-shaped leaves, with sharp, unequal-toothed lobes. In large plants the leaves themselves form a bold and distinctly-featured object, but it is as a winter-flowerer that the plants present the most striking appearance; the numerous, erect, branching, cymose flower-scapes rising above the foliage, and unfolding hundreds of small, bright, rosy-tinted blossoms, which, seen in contrast with diversified foliage, are very elegant and effective. The leaf-stalks of this plant towards their upper end are furnished with crimson, ruff-like, reversed fringes, terminating in hair-like projections. The principal veins of the leaves are also set with similar fringe-like appendages.

B. nitida: an ornamental, erect-growing, sparingly-branched species, one to three feet high, with large, shining-green, oblique-sided, ovate notched leaves, and large conspicuous clusters of beautiful blush-white, rosy-tinted blossoms, in the early spring months.

B. nitida coccinea: a variety somewhat smaller than the foregoing, of a more freely-branching habit, with smaller ovate-acuminate leaves, and more numerous bunches of blossoms, which are suffused with a richer rosy-crimson tint.

B. hydrocotylifolio-manicata: a dwarf hybrid, growing from a foot to a foot and a half high, having short, spreading, fleshy stems, and large, roundish-oblong leaves, dark green above, and richly-suffused with reddish-crimson on the under side, the leaf stalks salmon-red, and surfaced with the rudimentary or undeveloped crimson, fringe-like scales. The blossoms, which are produced in profusion, are of a rich rosy-tinted crimson, and, in well-grown specimens, are exceedingly beautiful.

B. miniata: a neat, shrubby, branching variety, growing one to three feet or more in height, the stems furnished with thickly-set, small, oblique, ovate-lanceolate leaves, and branching clusters of flowers of a rich salmon-tinted orange colour; they are produced in mid-winter and spring, and plants of large growth are admirably adapted for conservatory decoration.

The soil best adapted for *Begonias* is thoroughly decomposed friable loam, and heath-soil of similar quality, in the proportions of one-half of the former to one-fourth of the latter, well incorporated with another fourth part of leaf-mould, and pure river or silver sand. If the soil is too heavy or tenacious, broken charcoal, to the extent of one-sixth of the whole, may be added with advantage. As a general rule, a preponderance of peat soil is unfavourable for the style of growth of these plants, as well as inapplicable from their physiological structure. The process, or operation of potting, should be similar to that adopted with other soft green-stemmed plants, to the exclusion of what is generally known as "firm potting." In the application of water, the plants should only be supplied on each alternate day in summer, and proportionately so throughout the season. The reason for this deviation from the ordinary routine of daily watering is involved in the fact, that many of the species fail to develope their bloom perfectly when too freely supplied with moisture, whether in the atmosphere or the soil; therefore a warm conservatory or hothouse, which secures well-diffused and vertical light, as well as judicious ventilation, to prevent the injurious effects of excessive temperature, will be found most suitable for the culture of *Begonias.*

The ornamental-leaved kinds, being grown for the sake of their leaves rather than their flowers, may be advantageously kept in a moist atmosphere, in order to develope leaf-growth. The flowering herbaceous and shrubby kinds in general, require little beyond liberal stove culture; but in the case of *B. fuchsioides,* one of the most ornamental of the species, a few special hints, indicating however the general principles of the culture of other shrbuby species, may be advantageously added. The constitutional freeness of growth in this admired plant, occasionally induces a plethoric habit, unfavourable to the formation of bloom buds. This condition is attributable, in the majority of cases to *over-potting* or *late potting,* or a too long exposure to high temperature, and a total absence of

remedial after-measures to mature the growth which has been made, by means of a period of rest in a lower temperature. Excessive vigour is easily avoided, in plants intended for winter bloom, by not removing them into larger pots later than the early spring or summer months; and by subjecting the requisite amount of summer-made growth (obtained in the warm conservatory or stove) to a lower temperature in the greenhouse, or a gradual exposure to the open air for some weeks' continuance in favourable autumn weather, until the plants manifest a severely retarded growth by their bronzy tint. This degree of exposure will, on replacing the plants in the congenial atmosphere of a warmer house, induce a high degree of fertility, and a succession of bloom for several months will be the result. An observance of the same rule, where earlier or later bloom is required, will be found productive of similar results. In adopting this mode of treatment we recognise an important principle in nature, which seeks to assign a limit to the extent of annual growth in plants, as an antecedent and necessary condition to that after-repose, which, as a general rule, is absolutely essential to the free production of flowers or fruit.

The genus *Begonia* at the present time, affords great diversity of character, not merely as regards the colour and arrangement of the flowers, but still more as regards the size, form, and markings of the foliage—which latter, in many species, produces a more picturesque effect than even the flowers themselves. The species and varieties included in our first section (see Plate XI.) are admissible to the most select and limited collections of stove plants; while those placed in the other sections, being for the most part of shrubby habit, are suitable for larger collections, in which they may be made to yield a continuous succession of flowers.

Nearly all the ornamental-leaved kinds are adapted by their size and habit for culture in pots of medium or limited size, and they give out their richly-varied hues, most brilliant in the youngest growth, if placed during their period of growth under the favourable influences of a warm moist atmosphere and intense light.

The following species are particularly suitable, as portable specimens, for the temporary decoration of large conservatories, saloons, &c. for which purpose they should be fitted by gradual exposure, and when placed in such situations, they should be screened from currents of cold air:—*B. fuchsioides, insignis, parviflora, manicata, miniata, Martiana,* and *Billeteri.*

One of the most useful species for introducing in groups in the drawing-room or *boudoir,* or for placing as a single temporary specimen in a classic vase, or for crowning the summit of a marble pedestal, is *B. insignis.* In such positions, its gracefully drooping masses of bloom, especially if thrown into relief by a dark back-ground of other plants, have a charming effect, and the long endurance of its blossoms also renders it particularly suitable for such positions.

Among the largest of the species, specially suited by their habit for the formation of single ornamental specimens in bloom, the following sorts being most conspicuous for their stately appearance, are preferable:—*B. fuchsioides, insignis, manicata, miniata,* and *Martiana.* A selection which would be found to combine the greatest variety and interest throughout the year, and therefore especially suitable for small establishments, would be *B. Rex, splendida, Thwaitesii, Griffithii, insignis, parviflora, manicata,* and *Martiana.*

Groups of the most ornamental kinds would appear to great advantage, if tastefully arranged in large suspended baskets or vases. For this object, well-grown plants of *B. sanguinea, zebrina,* or *splendida,* would be most suitable for the centre; while for completing the marginal outline, *B. Griffithii, marmorata,* and *Reichenheimi,* with smaller plants of *B. splendida* and *Roylei,* would present a fine combination of richly-blended crimson and green foliage. Additional variety, might of course be produced, by adding one or more of the highly-coloured-leaved plants distinct from *Begonia,* such as, the richly-coloured *Dracæna terminalis versicolor,* or the silvery-variegated *Pandanus javanicus,* or the golden-striped pine-apple, *Ananassa sativa variegata,* or some of the many other gay-foliaged plants which now adorn our hothouses and conservatories.

NEW DOUBLE-FLOWERED PETUNIAS.

(Figs. 2 and 3.)

The double-flowered *Petunia,* which is cultivated under the name of *P. imperialis,* was first introduced by M. Schmitt, nurseryman, of Lyons, in France. From this variety, now well known in gardens, Mr. Grieves, of Culford Hall, has obtained by judicious hybridation, a race of double-flowered kinds, which in form, substance, colour, and other desirable qualities are much superior to the original sort. These qualities, together with the neat free habit of growth they possess, will ere long render the class of double-flowered Petunias desirable additions to our flower-gardens. It is two of Mr. Grieves's varieties we now figure. The varieties which have, so far, been obtained, form two classes, in one of which the flowers resemble those of the double hollyhock, in the other the camellia-flowered balsam.

Fig. 2. General Havelock.—Large, bright crimson, with bold outer guard petal, well filled out, forming a full double flower.

Fig. 3. Antigone.—Large, fine white, full and well up in the centre; a fine double flower.

ACHIMENES.

1. A Eeckhautei.
2. A Meteor.
3. A Belmontiensis.

Miss Sowerby del.t C.T.Rosenberg gince.

C.F.Cheffins & Sons, Litho.

PLATE XIV.

NEW ACHIMENES.

THE genus *Achimenes* affords some of the most valuable of summer flowering hot-house plants yet introduced, the dwarf, compact, branching habit of most of the species, together with their profuse and long continued succession of bloom, render them superior as objects of ornament, to almost every other race of tropical plants of herbaceous habit. The large flowered kinds, when grown ten, twenty, or thirty together in proportionate sized pots, (the tubers having been previously started into growth in dishes, or feeders), are, amongst the finest objects we possess for summer display in warm conservatories and hot-houses, as well as for competition. The pliability of their stems, moreover, renders them appropriate for planting amongst moss, in portable baskets or vases, for suspension in lofty drawing-room conservatories.

Fig. 1. A. (TYDÆA) EECKHAUTEI.—This highly ornamental hybrid was raised in the Belgian gardens. It is of neat, erect, branching habit, sub-evergreen, one to two feet in height, and has soft, ovate, pointed leaves, of a dark coppery-green, relieved by a marginal band of light silvery-green. The flowers are large, conspicuous, numerous; the tube bright vermilion-scarlet on the upper side, orange-yellow below; the limb an inch and a half across, five-lobed, clear vermilion-scarlet richly banded and spotted with crimson on the upper lobes, the lower lobes being of an amber-yellow, marked with dark crimson bands and lines, radiating from the throat towards the margin, which is marked by carmine spots. It is valuable not only for its beautifully-marked bright-coloured flowers, but for the long-continued succession in which they are produced through the summer and autumn.

Fig. 2. A. METEOR.—A new and beautiful plant, neat, vigorous, and branching in habit, a foot or more in height, with small dark-green leaves, and numerous bright scarlet-crimson flowers, nearly an inch and half in diameter; and forming altogether a very effective plant for embellishment, either in select small collections, or when grown *en masse*, for general display.

Fig. 3. A. BELMONTIENSIS.—A new ornamental summer-flowering hybrid, raised in the garden of Mrs. Leigh, Belmont, Northwick, Cheshire. It has the habit of *A. longiflora major*, producing very large, round-lobed, well-expanded blossoms, two to three inches in diameter. The flowers are very rich, deep, violet-tinted plum-colour, obscurely crenated at the margin, and having about the centre, a yellow blotch upon a creamy-white ground, which is marked with small carmine streaks and crimson spots. It is a fine addition to the genus, on account of the size of its plum-coloured flowers, which will admirably contrast with the snow-white blossoms of *A. Margaretta*.

Instead of devoting space to any remarks on the culture of this family, which is easy and well understood, we shall append a few descriptive notes relating to those kinds of *Achimenes* which are specially recommended for general culture.

A. dentoniensis: an elegant new variety of neat, slender, branching habit, with medium-sized, dark-green foliage, and a profusion of compact, circular-lobed, clear, rosy-lilac blossoms, which are nearly two inches across; they have a small white throat, surrounded with conspicuous violet-purple lines, radiating into the centre of each lobe. It is a very desirable colour for general collections.

A. Leighii: a compact, free blooming summer variety, of slender branching habit, having comparatively small leaves, and medium-sized, pale, violet-tinted purple blossoms, which are nearly two inches across, and marked in the centre with a green-margined, yellow cloud-like spot richly sprinkled with carmine dots.

A. longiflora major: a beautiful and much admired variety of one of the most ornamental of the species. It is of a compact, branching habit, and with its small ovate-lanceolate leaves, bears a profusion of large, rich, blue flowers, upwards of two inches across the limb, and of fine form and substance. It

is one of the most ornamental summer flowering plants in its class, and well adapted both for exhibition and general display.

A. Margaretta: another variety of *A. longiflora*, equally valuable with the preceding, and of the same habit. The leaves are light green; and it bears profusely its large, snow-white, well-proportioned blossoms. It is an extremely beautiful plant, invaluable on account of the endurance of its flowers, and for its brilliant effect when employed for evening decoration, as well as for general decorative purposes.

A. Edmund Bossier: a dwarf, compact, and elegant summer-flowering plant, growing a foot or rather more in height, with small foliage, and numerous, large, conspicuous, porcelain-white blossoms, very delicately ornamented with numerous, radiating, dotted violet-purple lines, blending together on the upper lobes.

A. Ambroise Verschaffelt: a dwarf branching kind, of compact growth, very beautiful, having small hairy ovate leaves, and numerous large, conspicuous, porcelain-white blossoms, richly marked in the centre with bright violet-purple freckles and lines, which converge into a dark cloud-like spot on the upper lobes.

A. Sir Trehern Thomas: a highly ornamental robust variety, growing a foot and a half high, with broadly-ovate hairy leaves, and numerous large, bright, crimson-red flowers, nearly two inches in diameter. It is one of the finest varieties, and well adapted for summer exhibitions, and for general effect.

A. rosea elegans: a dwarf, compact variety, sub-erect in habit, with small leaves, and a profusion of blossoms, which are about three-quarters of an inch wide, clear rose-colour, relieved by a tawny-yellow spot on the throat, which is densely sprinkled with crimson dots. It is a beautiful plant for the summer and late autumn months.

A. rosea magnifica: a distinct and showy kind, similar in habit to *A. Ambroise Verschaffelt*, being dwarf and compact, but of a lighter green. The flowers are conspicuous, of a clear rose-colour, and about an inch in diameter.

A. carminata splendens: an ornamental summer-flowering, sub-erect, medium-sized variety, with ovately-heart-shaped leaves, and numerous bright carmine-crimson flowers, nearly an inch in diameter.

A. Parsonsi: a new and ornamental variety in the way of *A. Hendersoni*. The flowers are large and numerous, two inches in diameter, of a rich purplish-violet colour, shading off in the centre to a bronzy-yellow, over which numerous distinct brown lines radiate from the throat outwards.

A. (Tydæa) amabilis: * a neat, dwarf, spring and early summer-flowering species, six to twelve inches high, with ovately heart-shaped leaves, of a light silvery-grey tint, relieved by irregular spaces of darker coppery-green along the principal veins. The numerous blossoms are funnel-shaped, with pale rosy tubes, expanding into a round-lobed limb, about one inch in diameter, of a richer rosy tint, and beautifully marked with broken streaks and spots of a darker rose colour.

A. (Tydæa) gigantea: an ornamental species, of robust, erect habit, growing nearly or quite two feet in height, furnished with moderate-sized ovate-oblong leaves, mottled with green and silvery-grey; and bearing numerous short-tubed blossoms of a rich orange-crimson on the upper lobes, and bright yellow on the lower, the whole of the limb richly spotted with crimson. As a late autumn and winter flowering plant, it is especially valuable on account of its long-continued succession of bloom, affording an almost uninterrupted supply for drawing room portable flower-baskets and vases.

A. (Locheria) magnifica: a summer-flowering species, of erect robust habit, with ovate-lanceolate glossy leaves, and large, axillary, bluntly-lobed, funnel-shaped blossoms, two inches in diameter, of a rich crimson colour, marked with conspicuous black lines, radiating from the throat beyond the centre of the lobes, the remaining portion of which is covered with black dots. The beautiful flowers of this species are rather sparingly produced, which lessens its value for display. It will prove a valuable plant for hybridation.

A. (Nægelia) amabilis: a summer-flowering species, erect, sparingly branched, with heart-shaped leaves, and large spike-like racemes of snow-white funnel-shaped blossoms, having a pale yellow throat. It is a distinct and pretty species.

A. fimbriata (gloxiniæflora): a remarkable large-flowering species, neat dwarf and sparingly-branched in habit, and having small smooth green leaves. The large blossoms are of a creamy-white colour, elegantly fringed and spotted, and indicate in their form some affinity with those of *Gloxinia*.

A. cupreata: a neat plant, of trailing habit, with blunt, oval-oblong, coppery-green leaves, silvery-grey in the centre, and tinged with pale rosy-crimson on the under side. The flowers are axillary, pedunculate, short, salver-shaped, of a rich orange-scarlet. Its habit renders it a very suitable plant for suspended baskets and vases, and its leaves, which are rugose and blistered whilst young, as well as mottled, have a very distinct and rich appearance, and contrast well with the brilliantly-coloured flowers. Similar to this, and perhaps even more desirable, is the *A. (Tapina) splendens*, which has glossy green leaves, and richer scarlet flowers, and of which a figure is given on *Plate* X.

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* Of the two plants called *Achimenes amabilis*, that belonging to the section *Tydæa* was first so named in the index to M. Van Houtte's *Flore des Serres*. We therefore propose to distinguish the *A. (Nægelia) amabilis* of Decaisne, which is also included in our enumeration, by the name *Achimenes Decaisnei*.—M.

Eucharis Amazonica.

Miss Sowerby delt. C.T. Rosenberg pinx.

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PLATE XV.

EUCHARIS AMAZONICA (*Linden*).

THIS, which is without question one of the finest acquisitions recently made for the decoration of our stoves, is a bulbous plant, having permanent foliage, and hence requiring to be kept in continuous growth. It was discovered by M. Porte, in the country bordering the upper course of the Amazon, near Moyobamba, in Peru, according to one statement: in the Brazilian province of Para, according to another: whence plants were sent, in 1855, to M. Linden, of Brussels, through whose hands it has reached our gardens. The flowers are very large and highly fragrant, the habit bold and effective, so that the plant forms at once a desirable addition to, and the most prominent member of, the small modern genus, allied to *Eurycles*, to which the name *Eucharis* has been given.

Botanically, *Eucharis amazonica* is no doubt related to the previously described *E. grandiflora*, with which it is sometimes confounded, and of which it is perhaps only a variety. *Eucharis grandiflora* comes from Choco, in New Grenada, and was also introduced by M. Linden's collectors. As an ornamental plant, *Eucharis amazonica* is both distinct and superior, differing, as M.M. Planchon and Linden state, in being larger in all its parts, and materially differing also, according to the Belgian cultivators, who have had longest experience of its habits, in its free-flowering character.

The plant produces a somewhat large bulbous stem, and from this a few broad dark-green leathery leaves, of an ovate-acuminate outline, plicately subcordate at the base, longitudinally striate, and supported on long semi-terete petioles, about equalling them in length. The scape, which is from a foot to a foot and a half high, supports an umbel of about six or eight flowers, which emerge from between a pair of spathaceous bracts. The flowers themselves are three to four inches or more in expansion, more or less pendent, very fragrant, and extremely beautiful, snow-white, with faint green streaks on the central cup-shaped portion. In structure the flowers are pancratiform, consisting of a widely expanded limb or perianth, combined below into a long, slender, curved tube, which, widening upwards, expands from its inner surface into a large staminal cup or corona, within or above the petaloid limb. The tube is white, slightly curved, slender below, scarcely more than one-eighth of an inch in diameter at the base, widening to about three-fourths of an inch in its upper part, two inches or more in length below the limb. The limb is about four inches, sometimes more, in expansion, and consists of six nearly equal ovate horizontally-spreading segments, which measure about one and a half inch across their widest part, and are firm, fleshy, and pure white. Within this limb, and terminating the tube, is a staminal cup, formed by the union of the dilated bases of the filaments, each of which produces an apical lobe right and left of the conical portion which supports the anther; this cup is nearly an inch in diameter, and upwards of half an inch in depth, the margin supporting, at regular intervals, six greyish anthers, on short awl-shaped filaments, a pair of shorter, bluntly-triangular teeth alternating with the filaments, the lines of which are extended downwards to the base of the cup in yellowish-green diffused streaks; the cup is otherwise pure white, and of fleshy texture, like the other parts of the perianth. The style is slender, exserted, terminating in a large indistinctly three-lobed stigma. The ovary is short, and bluntly triangular.

EUCHARIS AMAZONICA.

This species of *Eucharis* has several qualities which specially recommend it for general cultivation. Of these the chaste beauty and delicate perfume of its flowers have been already mentioned. We may further particularly allude to the facility with which it may be had in bloom at any season of the year, with as much certainty as in the case of a *Gloxinia* or *Achimenes,* for it requires only the simple condition which applies to other certain-blooming plants —the production of a bulb of sufficient strength and vigour—to ensure its flowering; and where a succession of plants admit of the necessary preparatory treatment, it will as frequently yield its lovely blossoms in midwinter, as at any other season. Another of its recommendations is, that it seems capable of forming and developing its flowers while of comparatively small size, requiring no other treatment to secure this result than such as it would receive in a miscellaneous collection of stove plants, under skilful and rational management. A moderately rich open soil of loam, peat, leaf-mould, or decayed manure, and sand, should be employed; the plants should be well exposed to light, their leaves being permanent; and they *do not* require, like many other stove bulbs, a special and marked season of rest, but a uniform and progressive rate of growth should be maintained, moderated somewhat, after flowering, before a fresh start is made.

This facility of culture and free-blooming habit, together with its classic beauty and agreeable fragrance, must render the species one of especial interest to lovers of stove bulbs, and must secure for it a place in all select collections. We do not hesitate to designate it a sterling addition to our cultivated tropical plants, and one of permanent value.

Ornamental Foliaged Plants.

Printed by

PLATE XVI.

PLANTS OF ORNAMENTAL FOLIAGE.

THE variety of tint and of marking which occurs even in the leaves of plants, no less than their remarkable and beautiful forms, has for some time attracted the attention of cultivators, so that our gardens are rapidly filling with plants which are prized for these features alone. The rich vegetation of the tropics is especially drawn upon for a supply, and consequently it is in hot-houses that the finest display of this character is obtained. The picturesque forms, both in respect to foliage and habit, which occur among the Ferns, the Palms, and the Dracænas, for example, seem, by contrast, to heighten the beauties developed in other plants in the shape of masses of flowers; while the rich markings in the leaves of many among them, furnish, as it were, a perpetual bloom, which is especially valuable, in a decorative point of view, at those periods of the year when flowers are naturally less abundant. Our plate represents a few of the plants which belong to these classes.

Fig. 1. CROTON VARIEGATUM.—Amongst the plants which, by their ornamental foliage, enliven our hothouses during the autumn and winter months, the *Croton variegatum*, also called *Codiæum chrysostictum*, may be considered one of the most striking and picturesque. It forms a neat free-growing shrub, of from one to three feet in height, branching in habit, and adapted for medium-sized pot culture. The leaves are of a leathery texture, oblong-lanceolate in form, and of a lively green ground colour, the upper surface diversified by the rich golden yellow colour of the central rib, from which secondary nerves, equally highly coloured, diverge towards the margin, whilst the intervening spaces are marked by spots and blotches of similar tint. It forms one of the prettiest objects to be found in this class of plants, on account of the lively contrast afforded by its richly marked leaves when brought into contact with the darker green hue of other plants.

There is a much inferior variety of this species in some collections; it is of similar habit and style of growth, but is readily known by the less variegated surface of its leaves.

Fig. 2. VRIESIA SPECIOSA.—This has sometimes been called *Tillandsia splendens*. It is a dwarf evergreen hothouse plant, with a habit of growth similar to that of the well-known Pine-apple plant, but less rigid in texture. Its leaves are from nine to sixteen inches in length, sword-shaped, broad and overlapping at the base, where also they are channelled by the incurvature of their margins, the upper part being more flattened; as they mature in growth they become gracefully decurved. Their ground colour is deep green, and from the base upwards they are picturesquely marked at intervals on the under surface with very conspicuous and well-defined bands of rich dark chocolate, which correspond with fainter markings of the same colour on the upper surface. In addition to this permanent feature of interest, the flower-scape of this plant presents an equally beautiful and novel effect. It arises from the crown or centre of the leaves, and the flowers, which are themselves white and of secondary interest, are produced from the bosom of brilliant scarlet imbricated bracts, which are compressed so as to assume in the aggregate a flat sword-shaped outline of a foot or upwards in length. This scarlet inflorescence of course adds much to the beauty and attractiveness of the plant.

Fig. 3. DRACÆNA MACULATA.—This forms a neat and compact erect plant, and is suitable for small or medium-sized pots. It has broadish oblong leathery leaves, from six to nine inches in length, of a rich green ground tint, diversified with oblong-roundish blotches of lighter green, which render them very picturesque. The leaves assume a more lanceolate and cucullate form before attaining maturity. The habit of the *Dracænas* is very characteristic, erect, with spreading masses of leaves terminating the stems.

Fig. 4. DRACÆNA TERMINALIS PICTA.—This is a highly ornamental variegated and many-coloured shrub, from one to three feet in height, sparingly branched in habit, generally producing large terminal spreading crowns of long lanceolate acuminate glossy leaves, from a foot to a foot and a half in length, stem clasping at the base and contracting below, so as to give the appearance of an ordinary petiole or footstalk, above which the leaf-blade assumes its full expansion. The principal feature of interest in this species arises from the remarkably rich crimson hue, with

which the longitudinally nerved leaves become coloured when duly exposed to a properly regulated hothouse temperature and unobstructed light; they manifest a tendency to become coloured, first, along their margins for the entire length, including the contracted petiole-like base, then larger coloured spaces appear over the entire width, and, lastly, the entire leaf assumes an uniform bright crimson tint. The young plants of this fine species are of a reddish green colour until they attain something like mature age, and until due exposure to genial temperature and light has developed their naturally rich tints; but where the terminal heads or crowns of mature plants are removed for the purpose of forming new plants, the rich colours are then permanently retained in the after-growth. This plant thus constitutes one of the most beautiful and picturesque of ornamental-leaved plants in cultivation.

Fig. 5. Pavetta borbonica.—An ornamental and picturesque-leaved shrub, requiring hothouse culture. It has opposite, glossy, leathery, oblong-lanceolate leaves, from six to ten inches long, of a laurel-like aspect. The upper surface of these leaves shows a prominent midrib, extending their whole length, of a rich crimson colour, and the diverging veins on each side have the same brilliant tint, whilst the minuter reticulations contrast with the intermediate parts by their vivid green. This upper surface is moreover finely dappled with light and dark green shaded tissue. In its peculiar features of interest this plant is unsurpassed. Being a native of a hot climate, it loves a high and tolerably moist atmosphere in the season of its growth. An inferior plant, bearing the name of *Elæodendron indicum*, very similar in its habit and growth, has been occasionally substituted for the *Pavetta borbonica*, but the spurious plant is readily distinguished by its more robust style of growth, and the much less vivid colouring of all its parts.

Fig. 6. Hæmadictyon venosum.—This neat climbing hothouse shrub is sometimes known as *Echites nutans*. It is of slender habit, furnished with opposite ovate-acuminate or oval-lanceolate leaves of rich dark green hue, the midrib or central nerve, as well as the lateral veins, being of a beautiful rosy-lake colour, which colour also extends to the minuter veins which intersect the green spaces. The delicate yet healthful structure of the foliage is in keeping with the exquisitely picturesque tracery upon its surface, the colours of which are seen intensely bright when the growth is continued in a warm moist atmosphere under a diffused vertical light, and aided by the stimulus of root temperature from a tan-bed or heated tank. A renewed growth may be obtained by restricting the upper or terminal shoots, or by inducing the formation of branches from the roots, by freely pruning back the main stems.

Fig. 7. Begonia splendida.—This distinct and novel species is a dwarf soft-stemmed plant, growing from a foot to a foot and a half in height, and adapted for culture in medium-sized pots. It has large unequal-sided leaves prominently nerved on the under side, and, when first developed, of an exceedingly fine uniform crimson colour, both the upper and under surfaces, as well as the footstalks, being thickly coated with brilliant crimson hairs; from this they gradually change as they expand, to a rich bronze red. Under superior culture, which is attained by the ordinary attention to repotting, together with the aid of a slight root temperature (after a short season of rest), and by the timely removal of the larger leaves, as a stimulus to the freer production of young leaves, this species becomes one of the most attractive and beautiful objects in the hothouse department, its permanent features of interest being unequalled by any other plant in general cultivation.

Fig. 8. Coccocypselum repens.—A neat decumbent or pendulous herb, suitable for a cool hothouse, having the stems surfaced with short violet-purple hairs, and bearing small ovate leaves, with their footstalks and the base of the midrib of the same reddish tint as the stems. The small lilac blossoms are produced on short pedunculate clusters from the axils of the leaves in the late summer and autumn months, and are succeeded by violet-blue berries, which afford a very pretty contrast during the winter months. Its trailing yet compact style of growth, in small or medium-sized pots, renders it suitable for the margins of groups in ornamental vases or baskets; and it is also well suited for suspended baskets. Where the plants are subject to a temperature sufficiently high to cause attenuated and continuous growth, it will be beneficial to pinch off the extremities of the shoots so as to induce a compact and branching habit. This plant is sometimes known in gardens as *Coccocypselum discolor*.

Gardenia citriodora.

Miss Sowerby delt. C.T.Rosenberg pinxo.

Printed by C.F.Cheffins & Sons. London.

PLATE XVII.

GARDENIA CITRIODORA (*Hooker*).

AMONG plants of recent introduction, few can vie with the *Gardenia citriodora* in the quality of rich and delicate odour in their blossoms, and in the abundance in which they are produced. This prolificacy of bloom is here so remarkable, that young plants from cuttings just rooted, continue to produce their clusters of blossom-buds in such profusion, that, unless they are removed, the progress of the plants is very much retarded. Such a habit, however, adds very materially to the value of the plant for ornamental purposes; for if a moderate-sized bush is first obtained, by a proper course of culture, a profusion of blossoms is certain to follow. These blossoms possess, individually, a good deal of the appearance of those of the Orange tree, and they nearly resemble them in their odour; but the plant itself is much more neat and manageable in habit, and will hence be, no doubt, sought after for decorating and perfuming drawing-room conservatories, or for intermixing with other fragrant and showy plants in the flower-vases used for in-door embellishment.

The plant is a native of Natal, and was first introduced to the Chelsea Botanic Garden a few years since, when its free-blooming habit attracted attention. It has more recently been brought into notice by Messrs. Rollisson, of Tooting, and from their establishment was figured in the *Botanical Magazine*. Our drawing has been prepared from a fine plant in our own possession. It forms a neat, dwarf, branching, dense-growing shrub, of from one to two feet in height, furnished with opposite dark-green, wavy, elliptic-lanceolate leaves, from whose axils proceed almost universally the stalked cymose clusters of star-shaped flowers: these being pure white, tipped with pink in the bud, and having a strong and delicious odour, resembling that of orange-blossom, or combining the fragrance of the orange and jasmine. The flowers appear in the early spring and summer months. This *Gardenia citriodora* will form a valuable addition to select collections of flowering plants, especially where species of small or moderate dimensions are preferred, a cool stove or warm greenhouse temperature being suitable for it. In such situations, with ordinary care, and planted in moderate-sized pots of peat and loam, it will be found to be of very easy culture.

The Gardenias are general favourites among stove plants, in some cases on account of the richness of their perfume, as in *G. radicans* and *G. florida* and its varieties; sometimes rather on account of the stately habit they possess, as in the case of *G. Stanleyana*, which is also altogether different from the preceding in the character of its flowers. In addition to our present subject, we regard the following as the most desirable *Gardenias* for general cultivation, namely:—*radicans, florida intermedia, Fortuni, Stanleyana,* and *amœna*. A descriptive notice of these plants will be found under Plate XVIII.

The general culture of *Gardenias* may be assimilated with that of *G. radicans*, of which we now offer some explanation. Though enduring high temperature as a means of stimulating and maintaining its vigour after the flowering season, it is, nevertheless, after reaching maturity of growth, very accommodating in its habits until the late autumn or winter months. During this season of cessation from growth, namely from June until October or November, it may, with other allied species and varieties, be preserved in good condition in a greenhouse, or in a frame or pit having a north, south, or eastern aspect, in either of which positions the plants should be kept

tolerably close, avoiding extremes of temperature (such as would result from a close atmosphere, alternating with too copious or protracted admissions of air), and carefully preventing a parched condition of the soil. When placed in frames or pits for the summer and autumn, the necessary moderate and early admission of air should be so regulated as to avoid a thorough current, which may be prevented by not elevating the sashes for the admittance of the fresh air, but simply moving them downwards from the back; this, while it prevents any excess of ventilation, also prevents the parching influence of a draught, and ensures a modified degree of moisture within. During the sultry months a rather deep pit or frame will be found the most suitable, on account of the cooler and more uniform temperature that may be maintained; and whilst the external atmosphere is warm, a slight admission of air by night will be beneficial. The observance of these rules, together with attention to partial shading from intense sunlight, and the maintenance of a tolerably damp atmosphere within the pit or frame by watering the ground surface, are all the attention that will be required to ensure a healthy condition until autumn. At that season, greenhouse protection may be given them, until they are required for successional bloom in the forcing-house or stove throughout the winter and spring. A warm humid atmosphere will be found most congenial for the development of their bloom.

In cases where the miscellaneous character of the hothouse plants does not admit of the requisite moist genial temperature during the growing season, and in the absence of other artificial means for supplying bottom heat in the same house, these *desiderata* may be secured to some extent by occupying a space of the central pit, four to five feet in length, and about the same in depth, with tan or other fermenting material. The plants may then be supplied, in succession, with root temperature, by plunging the pots in the material so provided, while the subsidiary aid of occasional syringing will be found very beneficial. Where this method is impracticable, an excellent substitute will be found in the appropriation of a detached pit of four to five or more feet in depth, and a corresponding or greater length; this will admit of such an amount of heating material being used, as will, by occasional replenishings, supply a continuance of the requisite temperature throughout the season of growth. Such a position as the one last named would be conducive to the highest vigour and health in the plants, and by its successional treatment would secure a succession of bloom throughout the winter, especially in respect to *G. radicans*, *florida intermedia*, and *Fortuni*. Indeed, there is perhaps no better place for the perfecting of the annual growth of these plants than a well-regulated hotbed of fermenting material.

The chief precautionary measures which should be taken by amateur cultivators arise from the liability of the plants to be attacked by the red spider (*Acarus*). These attacks are principally brought on by undue exposure to a dry atmosphere, and by the occasional omission of watering. The simplest remedy, which should be applied as soon as the evil is observed, consists in washing both surfaces of the leaves with water impregnated with sulphur, or the dry sulphur may be gently sprinkled on the under surface, especially of the damp leaves, by means of a small dredging-box.

Thus, it will appear that a warm genial atmosphere, in connection with means for sustaining an equable root-temperature for a given period, is essential to the continued vigour of *Gardenias*, and that a cool and rather close uniform temperature is equally important during their resting period; whilst, on the other hand, a dry arid atmosphere, caused either by excessive sunlight, parching currents of air, or omissions of watering, is unfavourable to, and ultimately destructive of their health.

G. Stanleyana and *G. amœna* differ only in requiring a more continued stove temperature for their successful cultivation.

Rhododendrum Bylsianum (HYBRIDUM.)

PLATE XVIII.

RHODODENDRON BYLSIANUM.

AMONGST the ornamental hardy flowering shrubs adapted for decoration in the flower-garden and arboretum, there is not one so attractive in its features and gorgeous in effect as the *Rhododendron;* and from the numerous richly-coloured hybrid varieties which are each season added to the existing kinds, both at home and abroad, it seems likely to retain its prominent position. At the present day, a flower-garden or select shrubbery can scarcely be considered complete in its general arrangements, or well furnished as to variety, without the brilliant display of the *Rhododendron* group, combining, as it does, large masses of flowers with extreme gorgeousness as well as delicacy of colouring. There is not, moreover, any other family of plants fully adapted to our climate, that combines within itself the valuable features of a highly ornamental flowering shrub, and an evergreen of the first rank, as is the case with the *Rhododendron,* whose gay colours flash among the luxurious forms of summer verdure, and whose dense and compact masses of evergreen foliage enrich the quiet repose of autumn and winter.

The fine variety of which we now offer an illustration, is one of the most effective and picturesque kinds yet introduced to the notice of cultivators. It was originated by Messrs. Byls, Brothers, nurserymen, of Ghent, Belgium, who have been the fortunate raisers of other ornamental kinds. The present is one of vigorous and robust habit, and its superb blooms being produced late in the season, it will supersede those kinds which either require artificial protection, or become liable to sustain injury from early spring frosts. The flowers are borne in large compact conical clusters, and are well formed, and of a pure white ground colour, beautifully diversified with a rich rosy-carmine border or belt, the upper lobes being elegantly marked with greenish-buff spots.

It is almost needless to advert to the well-known adaptation of *Rhododendrons* for heath or peat soil; but it may be remarked, in reference to their growth in the open ground, that where the soil is fresh, and contains an excess of vegetable matter, giving to it an elastic and porous texture, a mixture of one-third of pulverized turfy loam, with an addition of river sand equal to one-sixth part of the whole, will be beneficial, as it will impart more body to the material: this is especially the case where sand does not form a natural component of the soil. It is important to add that, for the permanent vigour of the plants, either under natural conditions of growth, or when artificially cultivated in pots or boxes, they cannot, in the process of planting, be too firmly embedded in the soil, by pressure around and upon the roots; this being the most obvious and natural preventive (in the absence of surface covering) of the excessive evaporation which, in dry seasons, especially on shallow soils or slopes, becomes distressing and injurious. Where it may be desired to have the rich effect of their bloom in situations in which it is difficult to retain moisture, such as on sandy or gravelly strata, or on extreme slopes, the best course to adopt, is to remove the natural soil to the depth of two feet or more, placing at the bottom of the excavation a well-tempered stratum of clay, six or eight inches thick, slightly moulded into a dish-like form, and on this the heath soil or peat, to the depth of a foot and a-half or more, but not rising higher than the surrounding surface.

SELECT GARDENIAS.

(*See Plate* XVII.)

G. radicans: this is a small evergreen bush, with thickish shining dark green leaves, and intensely fragrant white blossoms. It is so universally admired, and so well appreciated, that little need be said in its praise;—its facility of growth under proper temperature, its neat, dwarf, branching habit, and readiness to bloom when of small size, and the rich odour of its blossoms, are features which recommend its culture wherever the ordinary means for its growth can be obtained. The double-flowered varieties of this and the following, which are natives of China and Japan, though known as "Cape Jasmines," are those now generally cultivated.

G. florida intermedia: this species differs from the foregoing in its more robust habit of growth, broader foliage, and larger flowers; the variety *intermedia*, which is specially recommended, is less robust in habit, and more branching than its parent, producing also more abundantly flowers which equal those of *G. florida* in size; all these agree in having pure white blossoms, imbued with a rich and powerful odour. By good culture, this valuable plant forms a neat evergreen bush from one to two feet or more in height. It is admirably adapted for grouping in conservatory or drawing-room decorations; in the latter situations especially, its ivory-like rose-shaped blossoms appear set off with fine effect, by the dark green background of their foliage. It may be made to yield a continuance of bloom, on successional plants, from mid-winter until the approach of summer, and it is from this variety chiefly that the rich supplies in Covent Garden are obtained. Its general treatment is the same as that of *G. radicans.*

G. Fortuni: this noble plant is generally considered to be a fine variety of *G. florida*, to which it bears a near resemblance; it has been somewhat recently introduced to our collections by Mr. Fortune, from China; and is, under superior culture, in all respects a very valuable addition to this fragrant family, and not yet duly appreciated. In its dark green laurel-like leaves, and conspicuous snow-white blossoms it has been aptly compared to the White Camellia; and this comparison is justified by the size and purity of its flowers, and the brilliant contrast between these and its ample rich green leaves. The flowers are deliciously scented, as in the allied kinds. As an exhibition plant it is unequalled for effect by any other of similar colour, its massive rose-like flowers being conspicuous in the distance before their outline or character can be discerned. In its habit of forming flower buds during the summer months, on the previously matured terminal growths, it agrees with other kinds. By judicious treatment it forms a stately evergreen bush, from two to five feet in height; and hence being the largest growing plant in its section, it requires to be of something like mature growth, to ensure uniform bloom.

G. Stanleyana: this noble plant is a native of Sierra Leone, and may be considered by far the finest of the large trumpet-flowered species, with small tree-like habit; its neat and horizontal style of growth readily distinguishing it from all others hitherto introduced. It may also be recognised by its comparatively slender but firm structure, its divergent branches being thrown out in series one above the other, the flowers standing upwards from the upper side of these branches. This peculiarity, together with its comparatively small ovate leaves, appears strikingly adapted to display its most picturesque, trumpet-shaped, creamy-white, richly-mottled, fragrant blossoms to the greatest advantage. The individual blossoms are from six to nine inches in length, varying in the varieties from cream colour to pure white; the tube is of a warm chocolate purple colour, tinged with deep rose as it expands into the pure white limb or border, which is from four to six inches in diameter. A well-grown specimen, exhibiting its large trumpet-like tubes, curving gracefully from or near the extremities of each branch, is a beautiful and remarkable object. It forms a neat, erect, branching shrub, of from two to three or four feet in height, suitable for medium-sized pot-culture.

G. amœna: a compact, dwarf, densely-branched shrub, growing about a foot in height, with neat, glossy, oblong, ovate leaves, and snow-white, salver-shaped blossoms, from two to three inches in diameter of the limb, with a long slender tube. Previous to their opening, they are delicately suffused with reddish-pink, and they retain the same tint on the outer side when expanded, during which period they give out a rich aromatic odour. The picturesque character of the flowers in their folded state, and the neat and limited growth of this species, render it worthy of a place in select collections. It is from the East Indies.

Rhododendron calophyllum.

Mrs Sowerby del.t C.T.Rosenberg sinco.

Printed by C.F.Cheffins & Sons, London.

PLATE XIX.

RHODODENDRON CALOPHYLLUM (*Nuttall*).

THIS proves to be a highly ornamental species, neat and compact, as well as free in habit, and producing, in the spring months, large deliciously-scented white flowers, of stout and durable texture. It is a native of Bhotan, whence it was introduced by T. J. Booth, Esq. The plant is of moderate vigour, attaining from a foot and a-half to three feet or more in height, furnished with dark opaque green, acute ovate-lanceolate leaves, somewhat rugosely veiny above, and covered with tawny scales beneath. It has terminal corymbs of few large white flowers, which are remarkable on account of the shortness of their footstalks, whence results a closely-set, compact inflorescence. The flowers are funnel-shaped, with broad round spreading lobes, with a dash of orange-yellow in the throat, and faintly suffused with red exteriorly; they are from three to four inches across the mouth.

The comparatively large blossoms and fine laurel-like leaves of this plant render it a most desirable addition to the greenhouse and conservatory; and from the fact of its blooming when of small size, it is particularly suited for limited or select collections. In its general style of growth it resembles *R. Maddeni*, but it differs, in its blossoms being of firmer texture and more erect, broader in the tube, and of wider expansion, with more compactly-rounded lobes, those of *R. Maddeni* being narrower in the tube, more pointed in the lobes, and hanging loosely in the truss. It is, again, closely related to *R. Jenkinsii*, but that species is more vigorous and straggling in habit, with longer leaves, and also more elongated flowers, which are, moreover, loosely arranged, from their being set on longish footstalks. In *R. Jenkinsii*, however, the flowers themselves, as well as the leaves, otherwise very much resemble those of *R. calophyllum*.

India has within the last few years contributed largely of this family for the ornamentation of our gardens, and chiefly from two regions, the Sikkim-Himalaya and Bhotan, the species thence obtained comprising great variety as well as beauty. The descriptive notes which follow, point out the most desirable and beautiful species obtained from the Sikkim-Himalayan region, which have either bloomed in English collections, or have become known to us through the admirable illustrations of Dr. Hooker, to whose personal exertions we are indebted for their introduction. In a subsequent article, we shall notice the magnificent species which have still more recently been introduced from Bhotan. In these two groups will be found new forms of exceeding beauty, remarkable for the large size of their flowers, or the splendour of their colouring.

The majority of the kinds obtained from these sources are chiefly recommended for greenhouse and conservatory pot-culture, in consequence of their being for the most part early blooming kinds, or, where sufficiently hardy to resist extreme cold, being yet, even under the most favourable conditions of locality, liable to sustain injury during the early spring months. It is, indeed, expected, that among the numerous species, some may ultimately prove thoroughly hardy, as they become matured; and this is found to be the case with the very beautiful dwarf *R. ciliatum*. The finer species will, however, doubtless form more handsome objects under artificial protection, which they are really worth, on account of their rich enduring verdure, and the noble proportions of their foliage and bloom; whilst others amongst them, including the valuable species now figured (*R. calophyllum*), will be found admirably adapted for small or medium-sized pot-culture.

SELECT SIKKIM RHODODENDRONS.

R. Dalhousiæ: a beautiful species, growing from three to five feet in height; neat, slender, and branching in habit, having comparatively small elliptic-obovate foliage, which finely contrasts with the large broad-limbed bell-shaped blossoms, which on first expanding are of a greenish or creamy white, and become purer in age; these flowers are from three to four and a-half inches across, and are delightfully fragrant. In some of the varieties the flowers are spotted with orange, and assume a roseate hue in their advanced stages of growth. In size and general effect, the flowers have been aptly compared to those of the well-known and admired white Bourbon Lily (*Lilium candidum*).

R. Edgworthii: a neat, much-branched shrub, for greenhouse culture, comparatively dwarf in habit, from two to three or more feet in height, and distinguished by its small elliptic-ovate sharp-pointed finely wrinkled leaves, and beautiful, large, short-tubed, funnel-shaped, fragrant white flowers, which are nearly four inches in diameter, bluntly-lobed, and partially crisped at the margin. In some of the seminal varieties the beauty is much enhanced by the rich rosy tint and veining traced upon the corolla. A singular yet interesting peculiarity occurs in this superb species. The young spring shoots and leaves are covered with a surface of rich brown wool-like hairs, which totally disappear in the mature growth, at which period the upper surface of the leaves is of a glossy dark-green hue, the under surface retaining its woolly fulvous coating. This greatly admired species does not, in its native habitat, seem naturally inclined to form lateral or side branches, but, by the aid of good cultivation, and by pruning back the leading shoots, or the whole of them in proportion to their respective vigour, it readily assumes a superior style of growth.

R. Falconeri: a noble and majestic species, robust, with large, obtusely obovate-elliptic, magnolia-like, leathery leaves, eight to twelve inches in length, and six or seven inches in width, and of a rich dark green. The flowers are borne in dense clusters, large, compact, bell-shaped, white, with a dark purple spot on the base of the upper lobes. The under surface of the leaves is strongly reticulated or nerved on a rich brown felt-like or woolly surface, and presents a very striking contrast with the dark verdure of the upper side.

R. Maddeni: a moderate sized species, growing from two to four feet in height, with smooth, laurel-like, elliptic-lanceolate, acute leaves, rust-coloured beneath, and clusters of large, handsome, bell-shaped, long-tubed flowers, from three to four inches in diameter, pure white, flushed with pink on the upper central lobe, and delicately fragrant. It forms a neat, compact, dark-green shrub, suitable for conservatory culture. The blooming plants of this species have, up to the present time, shown the flowers to resemble the original figure in their colour and size, but to differ in their lobes being more pointed.

R. Aucklandii: a stately, sparingly-branched species, growing from four to six or eight feet in height, with large, lively green, smooth, leathery, oblong-oval acute leaves, and umbel-like spreading clusters of remarkably large snow-white, widely expanded, short-tubed, bell-shaped flowers, from four to five and a-half inches in diameter, occasionally flushed with pink, and otherwise blended with yellow and rose tints at the base. The flowers of this fine species are large and remarkably handsome.

R. campylocarpum: a neat and compact branching shrub for the cool conservatory or greenhouse, growing from two to four feet in height, having bluntish-ovate or oblong lively green leaves, and numerous trusses of ornamental sulphur-tinted bell-shaped flowers, which diffuse a most delicate fragrance, and are gracefully deflexed. In its mature growth, this species ranks with the most beautiful of its tribe, and is additionally interesting on account of the incense-like odour given out from the glandular bodies which appear on the leaf stalks, the calyx, and other organs of the plant.

R. Wightii: a neat, densely-branched shrub, having smooth lanceolate or elliptic-lanceolate pointed leaves, from three to four or more inches in length, and very obscurely surfaced with short, distant, loose, hair-like projections, which disappear when mature; the upper surface is then of a dark, almost glossy green, whilst the under surface varies from a lighter green to a rich rufous red. The flowers are borne in large clusters, of an elegant straw-colour, bell-shaped, with expanding lobes, diversified with a reddish-brown crimson blotch surmounted with pink dots, and imparting a slight honey-like odour. This fine species yields to none in the beauty of its delicate, yet handsome large blossoms, and it forms a conspicuous ornament in the yellow group of species. Many of the plants which were originally circulated throughout the country are now ascertained to be incorrect, and at present the true stock of this extremely elegant species is very limited and scarce.

R. lanatum: a neat, comparatively dwarf, and closely branched shrub, with oblong or elliptic-obovate bluntish leaves. This highly interesting species presents a remarkably distinct and striking feature, the closely set, glossy dark green leaves being covered with a whitish cottony film, which is retained less or more in their mature growth, whilst the under surface is permanently coated with a rich and closely woven fawn-coloured cottony web. The flowers are borne on terminal conspicuous heads, and are large, widish-tubed, bell-shaped, pale sulphur colour, prettily marked with red dots on the upper lobes.

(*Continued under Plate* XX.)

Calceolaria.

1. General Outram. 3. General Havelock.
2. Lord Raglan. 4. Queen of Oude.
5. Lady Palmerston.

C.T. Rosenberg zinco.

Printed by C.F. Cheffins & [illegible]

PLATE XX.

NEW SHRUBBY CALCEOLARIAS.

FEW, amongst the great variety of plants which ornament our flower-gardens with brilliant masses of bloom, engage a greater share of interest, or contribute more to the rich effect of a well-arranged parterre, than that which is the subject of the accompanying illustration. The shrubby kinds of *Calceolaria* are invaluable for the general purposes of garden decoration; and they are equally well adapted for display in the conservatory and greenhouse. In their compactness of growth, profusion of flower, and contrast of colour, they are scarcely equalled by any other class of plants. The varieties now figured are of superior character in all the requisite features of display, for bedding purposes, or pot-culture; density of habit, multiplicity of bloom, and rich contrast being their chief recommendations for cultivation.

Fig. 1. General Outram.—Rich bronzed scarlet, relieved by a yellow cloud upon the lower lip, and freckled with distinct conspicuous brown crimson spots.

Fig. 2. Lord Raglan.—Rich salmony-scarlet red, partially freckled with crimson dots.

Fig. 3. General Havelock.—Very rich maroon-crimson, the flowers borne in dense flat corymbs, presenting a broad surface of bloom.

Fig. 4. Queen of Oude.—Rich crimson, shaded with scarlet, and freckled over with crimson spots; a bright and beautiful variety.

Fig. 5. Lady Palmerston.—Pure yellow, marked with rich cinnabar-red dots over the whole face of the flower.

It is not so generally known as it should be, that it is requisite to select the varieties of *Calceolaria* having small or medium-sized flowers, for bedding-out in the flower-garden. The large blossomed kinds, which always bear their flowers in large clusters, besides being exceedingly liable to suffer damage in boisterous weather, retain so great a weight of water in their flower-pouches after rain, that they are unable to support it, and fall off. It is on this account that the larger parti-coloured varieties, which are principally herbaceous or sub-herbaceous in their habit of growth, are adapted only for greenhouse and conservatory culture. The much greater variety of tint and marking which this class affords, excites, as is well known, a corresponding degree of interest among amateur cultivators, which is moreover increased by the certainty with which these delicate and beautiful productions can be annually raised from seed: this facility of reproduction rendering it unnecessary to attempt, as formerly, to continue the growth of varieties more or less exhausted by their prolificacy of bloom, and having, in a greater or less degree, a biennial character in their constitution. Where continuous pot-culture is desired, the production of large, well-formed, richly-coloured blossoms upon plants of narrow-leaved shrubby habit, is an object still to be acquired. These remarks appear necessary at the present period, when a fear exists of transferring varieties adapted for pot-culture to the open ground; for in the latter situation, a neat continuous branching habit of growth is far more essential than for pot-culture under glass. Some of the more recent varieties,—those, for example, now figured, which appear large in consequence of the specimens for illustration having been grown under glass,—do, nevertheless, combine with a shrubby habit of growth, well-formed blossoms, as large as are desirable for the purposes of out-door decorative effect.

SELECT SIKKIM RHODODENDRONS.

(*Continued from Plate* XIX.)

R. ciliatum: a dwarf, compact, early spring-flowering hardy shrub, from six to twelve or eighteen inches in height, of neat branching habit, with relatively small elliptic pointed leaves, which are prominently fringed and surfaced with minute hairs. It is a free blooming species, producing its comparatively large open bell-shaped blossoms in April and May; these blossoms are nearly two inches in diameter, varying from pure white to a delicate rose-tinted blush. At a distance, a large group or mass would readily be taken for a bed of primroses. It is moreover admirably adapted for forcing in the winter and spring months, and in this respect is a valuable plant for conservatory and greenhouse decoration, where its beautiful vase-like flowers produce a fine effect in contrast with its own thickly set, dark-green leaves.

R. Thomsoni: an ornamental species for the conservatory, forming a medium sized shrub of from three to six or eight feet in height, with a neat well-branched habit, and tufted, roundish-ovate, very obtuse leaves, having, whilst young, a glaucous-green upper surface, which colouring disappears with age, the under surface retaining permanently the glaucous or silvery-grey hue. The flowers, which are produced in corymb-like clusters, consist of widish-tubed, bell-shaped corollas issuing from crimson-tipped calyces or flower-cups, the corolla being of a brilliant glossy crimson, or blood-colour.

R. fulgens: a neat closely branched dwarf shrub of diffuse growth, growing from two to four or more feet in height, with medium sized, short, dark green, very obtuse and obovate, or ovate-elliptic leaves, and compact heads of the richest blood-red, or glossy crimson bell-shaped flowers, glowing with refulgent beauty in the early sun-light. The effect of this species, as seen in great masses, and in combination with the diversified hues and forms of vegetation that spring up around it on its native mountains, is described as extremely brilliant and imposing: too bright for the eye to rest upon, and too magnificent for ordinary language to describe. The rich verdure of its foliage, and the remarkable globular outline of its clusters of bloom, distinguish it at once from other species, and appear to imply a rich harvest of beauty in store for the lovers of this fine tribe of plants.

R. Hodgsoni: this species is one of the finest in habit yet introduced to our collections, attaining the stature of a medium-sized, compact, densely-branched shrub. It has very handsome dark green, blunt, obovate-elliptic leaves, from eight to twelve inches in length; when young they are slightly covered with a loose silky tomentum, which disappears from the upper surface by age, the under surface permanently retaining a closely woven silvery-grey web. The finely formed rosy-purple bell-shaped blossoms, are produced in large globular heads, and, as seen in harmony with the diffuse carpet-like surface of rich green foliage on which they repose, the effect must be quite equal to that described, when seen in its mature growth and beauty.

R. argenteum: a beautiful species for greenhouse or conservatory culture, of robust branching habit, with large obovate-oblong acute leaves, glossy dark green above, with an uniform silvery-grey shining under surface, traversed with prominent green nerves. The flowers are borne in large terminal heads, and are snow-white, bell-shaped, and from two to three inches in diameter. The habit of this noble plant being less formal and rigid than that of others, and its foliage more verdurous than many, it bears a distinct character in a group or collection, apart from the fine contrast of foliage and bloom which otherwise distinguish it.

In recommending the foregoing as some of the most valuable and attractive of the Sikkim Rhododendrons, we also recognise many others in the same group which are of secondary interest, and chiefly valuable either as botanical acquisitions, or for the purposes of hybridisation; of these we may name—*R. triflorum, glaucum, pendulum, Roylii, Campbelliæ, Wallichii, lancifolium, barbatum, æruginosum, salignum, elæagnoides, virgatum, camelliæflorum, candelabrum, cinnabarinum,* &c.

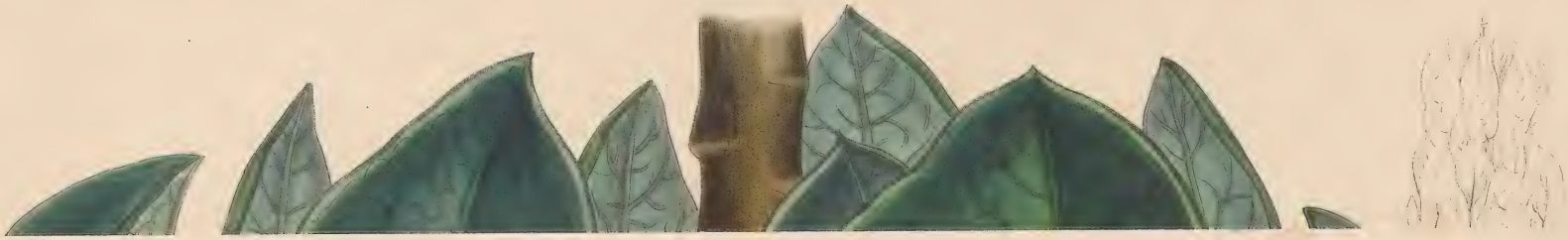

PLATE XXI.

RHODODENDRON NUTTALLII (*Booth*).

THE noble evergreen shrub which is the subject of the accompanying plate, forms part of the very valuable collection of *Rhododendrons* made in the Assam and Bhotan mountains, by Mr. T. J. Booth, by whom they were sent to Mr. Thomas Nuttall, of Rainhill, near Liverpool. Our present subject, *R. Nuttallii*, forms a robust growing, sparingly branched tree-like shrub, well suited for conservatory or greenhouse culture. The young growth of the plant is green, changing, in the second year, on the under side of the leaves, to a rich cinnamon red, which ultimately passes to a pale brown. Another peculiarity of the species, is, that its young green shoots are thickly dotted over with rusty brown scales, which ultimately disappear from the stems and the upper surface of the leaves, but are retained longer on the lower surface. The leaves are for the most part disposed in nearly opposite pairs along the stems, arranging themselves in whorls or flattish tufts at the extremities; they are ovate-oblong, with a small prominent point, large,—being almost or quite a foot in length, and four to six inches in width, the mid-rib and veins of the under surface tinted red whilst young, and becoming green afterwards; they are thick and rigid in texture, and wrinkled with raised bosses on the upper side, and corresponding depressions beneath, where the prominent nerves spread out from the central rib. The flowers are produced in colossal corymbose heads upwards of a foot in diameter, containing each from six to ten blossoms, which are individually extremely beautiful, being bell-shaped and massive, measuring upwards of six inches in diameter, and expanding into a graceful cup, with broad, compact, marginal lobes; these lobes are snow-white, relieved by a rich golden tint in the interior of the cup, and elegantly suffused with rose on the outside. The filaments of the stamens are tipped by light-brown anthers, and the long style is terminated by a large capitate five-lobed stigma. This magnificent plant, may, on account of the wonderful proportions of its parts, chaste outline, and purity of colour, and exquisite fragrance of its flowers, be considered as one of the finest of the genus. The accompanying figure was made from a specimen which flowered last spring in the garden of Herr Otto Forster, of Augsburg, Bavaria, who was, we believe, the first to bloom this remarkable species.

We have already under Plates XIX. and XX. given some account of the best Sikkim Rhododendrons, and we may take the present opportunity to notice in a similar way, the choice species introduced from Bhotan, &c., by Mr. Booth, of which that now figured is one:—

SELECT BHOTAN RHODODENDRONS.

R. Boothii: a neat shrub, growing five to six feet in height; the young growth surfaced with loose brown tomentum, which disappears in age. It has smallish dark-green ovately-oblong thick glossy leaves, rounded at the base; they are fringed on their margins with soft brown hairs, but otherwise smooth, the under side remarkably intersected with green veins. The flowers, eight or nine together, form compact heads, and are of moderate size, bell-shaped with roundish spreading lobes, clear sulphur-yellow, with conspicuous brown stamens, and a large prominent capitate green stigma. This is one of the most distinct species of the whole group.

R. calophyllum: this beautiful species we have already figured (Plate XIX). It forms a neat densely-branched shrub, with leathery, glossy, pointed oblong lanceolate leaves, slightly surfaced with a cottony fur in the young growth, and dotted with small scales on the under surface. The blossoms are produced, three or four together, in terminal clusters, and are large, pure white, funnel-shaped, delightfully scented, each from three to four inches in diameter, occasionally tinted with rose on the outside and at the base of the limb, the rich brown stamens, and rosy-crimson stigma, imparting a picturesque effect to the otherwise spotless flowers.

R. camelliæflorum: this singular and distinct species is found as an epiphyte in its native habitats, often pendulous from the trunks of trees, and on rocks. In cultivation it assumes a neat branching habit, and is furnished with small thin oblong-lanceolate leaves, green above, and having small rusty dots on the silvery-grey under-surface. The blossoms are pure white, nearly circular, somewhat resembling a single white Camellia, which it, moreover, also resembles in the large prominent tuft of orange-yellow anthers, which form an excellent relief to the cup-shaped flowers.

R. eximium: a small tree-like shrub, of noble habit, sparingly-branched, forming thickets by its umbrageous growth; its magnificent leaves are often from nine to eighteen inches in length, and from six to eight inches in width, blunt roundish oblong, or obversely-oval; they are remarkably leathery in texture, and when young surfaced on both sides with a thick covering of rich fawn-tinted wool, which in age is thrown off the upper surface, so that it becomes green, with a central silvery-grey nerve, whilst the under surface retains its rich brown felt-like coating between the prominent nerves. This remarkable species forms one of the most majestic trees among the Indian Rhododendrons.

R. Hookeri: an ornamental, sub-erect, branching hardy shrub, closely allied to *R. Thomsoni.* It has oblong or oval thick leathery leaves, equally obtuse at both ends, with a small projecting point at the apex; the under surface, which is glaucous, being elegantly nerved in reticulated lines. The flower-corymbs consist of twelve to eighteen, rich crimson compact bell-shaped blossoms, with a narrowish limb. The linear-oblong-elongated leaf-scales are often tinged with bright scarlet, which gives a beautiful appearance to the growing plant.

R. Jenkinsii: a handsome shrub, of branching habit, growing from five to seven feet in height, the stems covered with a thin pale greyish bloom, which disappears as they get old, the younger branches being reddish-barked; the laurel-like leaves are dark green, leathery, pointed oblong-lanceolate, having obscurely undulated margins. The large snow-white funnel-shaped blossoms, each nearly four inches in width, of fine outline and substance, distinguish it as one of the most beautiful in its tribe for conservatory decoration.

R. Kendrickii: a neat bushy dwarf tree-like shrub, six to eight feet in height, with smooth lanceolate leaves, produced partly in whorls, elegantly waved on the margins, and in their young state more or less clothed with reddish glutinous hairs; the flower-buds form an oval cone, and the clusters each contain ten or twelve large deep red blossoms. Besides its very distinct appearance, its comparatively hardy character gives it additional value.

R. Keysii: a dwarf, slender branched shrub, of neat habit, not more than from three to four feet in height, furnished with small narrow elliptic-lanceolate leaves, and short axillary clusters of rich salmon-red and scarlet tubular flowers, not unlike in aspect to those of some of the species of *Thibaudia.* From the great elevation at which it is found, and from its being often immersed in snow several feet in depth, it is regarded as quite hardy. Its resinous scales render it somewhat aromatic.

R. longifolium: a robust and luxuriant yet neat-growing branching species, having the young growth occasionally surfaced with a loose cottony nap. It is well distinguished from the others, by its very large, oblong-lanceolate leaves attaining in a high state of culture from nine to eighteen inches in length, and from four to six or more inches in width, often channelled by the depression of the central mibrib, the rich dark green upper surface often bullate or blistered while the under side is elegantly covered with a silvery film amid the prominently diverging nerves. In some of the seminal varieties, the leaves are gracefully drooping.

R. Windsorii: a small tree-like hardy branching shrub, of neat habit, with crimson-red bark in the younger stages of growth; and bearing smallish, glossy, bright green, obscurely-waved, oblong-lanceolate, pointed leaves, obtusely-wrinkled on the upper surface, and reticulated beneath. The flowers come in close crowded corymbs, and are of a rich deep crimson-scarlet, with compact emarginate lobes, surpassing those of *R. arboreum* in their glowing tints.

R. Windsorii, var. leucanthum: a densely branched dwarf hardy bush, from four to six feet in height, remarkably neat and compact in habit, with small, narrow, acutely lanceolate leaves, dark green on the upper side, and surfaced with a silvery-grey film beneath, where they are also prominently nerved and reticulated. The flower-heads are large, crowded, formed of fine white blossoms, with emarginate lobes. A very distinct habited plant.

Amongst the species now described, *R. calophyllum, R. Jenkinsii,* and *R. Keysii* may be cited as those which are suitable for the most limited collections, the two former having fine evergreen foliage, with large fragrant white wax-like flowers. Of the species of the Rhododendrons from the Bhotan region, as well as of those of the Sikkim-Himalaya hitherto flowered in this country, it may be remarked that the majority have proved equal, and in some instances superior to the original figures. That however of *R. Windsorii* is an exception, for it appears to have been taken from a seminal variety much inferior to the original type, from which it is found there is great divergence among the plants raised from seed.

The leading features in the culture of *Rhododendrons* have been already given under Plate XVIII.

Tritoma Uvaria.

PLATE XXII.

TRITOMA (KNIPHOFIA) UVARIA.

AMONGST the late or autumn-flowering hardy perennial herbaceous plants which ornament our English gardens, the one now illustrated must be allowed to take precedence, on account of its stately habit, and brilliant effective appearance. Though the species has been known to botanists and cultivators for nearly a century and a half, it is only within a few seasons, that its beauty and value, for decoration in masses, has been fully recognised and appreciated. This fact, it would be difficult to account for, except on the supposition that some inferior species has often been substituted for it.

This family of plants is well known in gardens as *Tritoma*. The name *Kniphofia*, however, by the law of priority, claims precedence, and it has been partially adopted; but whatever may be the case among botanists, it is probable that in gardens the more familiar and euphonious name *Tritoma*, will maintain its ground.

Exclusive of some kinds hereafter mentioned as distinct, there are in English gardens, at least three plants differing materially from each other, yet referrible to what may be called the Uvaria group; and both in gardens, and in books there is much confusion as to which of these properly represents the species. The specimen of Linnæus seems to point to the plant now called *T. Rooperi*, which however differs in several respects from the three plants above referred to. The figures quoted by Linnæus point probably to one of the three, as the fine illustrations of Jacquin and Redouté undoubtedly do. The rough harsh serrulated margin and keel of the leaves, is made by these and by all subsequent writers, the chief mark of *T. Uvaria*, but the fine plant grown so largely at Kew, and figured by Sir W. J. Hooker as *T. Uvaria*, in the *Botanical Magazine*, has but little of this peculiarity.* The probability is that most of the kinds known, are seminal varieties, produced either in gardens or in a state of nature, and hence the variability of some of the technical characters assigned to them. However this may be, our plate represents the finest kind known in cultivation, which is also that so extensively employed at Kew for ornamental planting. The brilliancy of the natural colours is unapproachable.

T. Uvaria forms a large tufted stemless plant, having at a distance the appearance of a broad-leaved grass. It has a short tuberous root-stock furnished with fleshy fibres. From the robust crown grow up the remarkably long, half-erect, glaucous green leaves, the section of which, from the sharp keel and elevated margins, forms a triangle; they are broadest at the base, three to four feet long, gradually attenuated to the slender points. From the centre of

* The result of our own inquiries into this question, as illustrated by the three plants here referred to, may be stated briefly as follows—

1. The true *T. Uvaria*, that is, the plant specially distinguished by the rough leaf edges, seems to be that grown in some gardens as *T. Burchellii*, though not the true *T. Burchellii*. This has a stout root-stock apparently forming a knob when old, with coarse roots and few suckers; leaves stiff, arching, and *very rough on the edges and keel;* flower-scapes shorter than in the following.
2. The *T. Uvaria* of Kew and the Botanical Magazine, and that figured in our plate, is probably a variety, which may be called *glaucescens*. It forms, when sufficiently old, a fleshy knob or root-stock, with rather coarse fibres and few suckers; leaves long, spreading, *subglaucous*, slightly rough on the edges in the younger parts; flower-scapes tall, with long racemes, highly coloured, in perfection during September, continuing to the middle of October, young divided plants sometimes blooming later.
3. The *T. Uvaria* of many gardens, is probably another variety, which may be called *serotina*, on account of its late blooming quality. It forms only a thin root-stock from which the main stem swells out very much, has numerous suckers, and more slender roots; leaves long, spreading, dull green, *not glaucous, and nearly smooth* at their edges; flowers on tall scapes, in long racemes, opening along with the preceding, and then paler in colour, but continuing after that is past, till the middle of November or later, acquiring intensity of colour, and becoming very handsome.—M.

these leaf-tufts, arise the tall smooth flower-scapes or stems, four to five feet, or more in height, terminating in long, ovately-cylindrical, dense racemes of pendent cylindrical flower-tubes, which unfold of a bright rich orange-red colour, then become tipped with yellow, and finally entirely yellow. These terminal flower racemes are often from one to two feet in length, and the brilliant tints of colour as seen at a distance, either in the deepening shades of evening, or in bright daylight, are unequalled by any other plant of the season.

The intrinsic value of this plant can scarcely be overrated, in consequence of its capacity to endure our winters, wherever a dry subsoil can be secured, artificially or otherwise, and, from its adaptation to thrive in our ordinary garden soils. For the attainment of its highest vigour, however, it prefers a rich mixture of open loam, peat, and leaf-mould, in a bed or border of two to three feet in depth. Thus planted, in conspicuous positions, where the glowing tints of colour can be viewed from different points, and the gorgeous masses so arranged against a rich dark-green back-ground, or, in open spaces where they can be seen through the prismatic medium of the sunbeam, there is no object in the flower-garden to compare with them for attractive beauty. When planted tolerably close with the strongest specimens in the centre, the combination *en masse*, appears like pyramidal groups of flame-coloured flower-shafts or columns, towering above the ordinary flower-beds, and imparting grandeur to the surrounding masses. In cold damp soils the plants need some protection, of which the simplest form is a thick coil or surface-covering of dry fern-tops, placed close around each crown.

One of the valuable features of *T. Uvaria* is its suitability for culture in large pots or vases. It may be so grown with success if planted in rich, firm-bodied soil, and duly supplied with copious waterings, as the plants advance in vigour; they should during mature growth be placed in feeders, from which a copious supply can be occasionally administered. For decorative purposes, as portable specimens on an extensive scale, either arranged in unmixed groups, or judiciously placed amongst evergreen shrubs, its brilliant blossoms would impart a gay and unique effect to the scenes in which it was thus introduced.

During the last year or two, there has been rather extensively sold as *Tritoma Uvaria*, a distinct variety which is quite worthy of cultivation. It is a late-flowering plant differing from the glaucous-leaved variety, to which the preceding remarks refer, in its more robust spreading growth, and green not glaucous scarcely serrated leaves; and though equally tall, and effective in its general features with that previously described and figured, and with bloom-racemes equally dense and long, it is distinguishable at first and until the beauty of the former is waning, by its less vivid flower-tints, after which, this variety increases in richness of colour, and continues until the middle of November to unfold its remarkably long and effective scapes of bloom, and only then appears to be stayed by the approach of severe weather. This latter desirable feature renders it doubly valuable as the latest hardy flowering-plant of the year, of its character and colour. This fine variety appears to be the same as one received at Kew from the Hull Botanic Garden, under the name of *T. Uvaria hybrida*, and is that we propose to distinguish as *T. Uvaria var. serotina*.

The principal remaining species of *Tritoma* may be briefly referred to as follows:—

T. Rooperi: a fine early or summer blooming species, more nearly resembling *T. Uvaria* than either of the following. It is of vigorous growth, and does not appear to bloom so freely in the open border as *T. Uvaria*, probably from being excited by planting out too near its flowering season. It has elongated scapes of bright-coloured flowers, peculiar from having the stamens enclosed within the tubes.

T. Burchellii: this has long smooth opaque-green leaves, and short flower-scapes, seldom rising more than three feet in height, bearing short oblong racemes of blossom, much inferior in colour to the varieties of *T. Uvaria* previously named. It is readily known from other species by its tendency to flower at Midsummer.

T. media: much more slender and smaller than the foregoing, with flower-scapes rising from one and a half to two feet during the later autumn and winter months; when protected, the racemes of orange tinted flower-tubes are interesting from their expansion in midwinter, but it is not sufficiently hardy to withstand a severe season when exposed, and wants the brilliant colour of the larger species.

T. pumila: the smallest species of the genus, the scapes seldom rising higher than twelve to eighteen inches, with terminal flower-racemes of densely-clustered orange-coloured flowers, which are tubular with a globose apex. This interesting plant is extremely rare in English gardens.

Variétés nouvelles d'Azalées de l'Inde.
(AZALEA INDICA) VAR.
1 Leopold 1ier. 2. Duc de Brabant. 3. Etoile de Gand. 4 Reine des panachées.
Serre froide (Semis-Gand.)

PLATE XXIII.

NEW INDIAN AZALEAS.

THE choice varieties of this popular greenhouse shrub, of which the accompanying plate offers illustrations, originated with Belgian cultivators, from whose hands they passed into the nursery establishment of M. A. Verschaffelt of Ghent, the entire stock having subsequently been purchased by Messrs. E. G. Henderson and Son, nurserymen, of St. John's Wood, London. These new Indian *Azaleas* are distinguished as fine robust varieties, intermediate in growth between the sections of which *A. Gledstanesii* and *A. phœnicea* may be taken as types; they are consequently of sub-evergreen habit, bear comparatively small foliage, are of compact growth with good outline, and are very prolific of bloom. Their names and peculiarities are as follows:—

Fig. 1. Leopold I. (C. Van Loo).—Flowers large, rich rose colour, with crimson spots on the upper lobes, and small duplicate petals in the centre.

Fig. 2. Duc de Brabant (C. Van Loo).—Flowers fine, large, light rosy-salmon, with rich crimson spots on all the lobes, and small duplicate petals in the centre.

Fig. 3. Etoile de Gand (M. Spae).—Flowers fine, large, round lobed, pure white, with an elegant starry light rose central star, and radiating lines of rich carmine spots on the upper segments.

Fig. 4. Reine des Panachées (De Witte).—Flowers large, pure white, ground colour uniformly striped and spotted with rose; picturesque and beautiful.

For massive beauty and effect, in the greenhouse or conservatory, during the early spring and summer months, there is no tribe of plants which will sustain a comparison with the Indian *Azaleas*. If the basis of cultivation is correct, they only need besides, a warm genial greenhouse temperature to excite and mature the annual growth, in order to secure permanent vigour, and a progressive ratio of growth and bloom for a series of years; added to which, they meet the wants of all classes of cultivators, in the profuse variety they present of free-flowering kinds, adapted either for medium-sized, or large pot culture, or for building up majestic specimen plants, alike fitted to decorate the conservatory at home and the exhibition stage abroad. Indeed, for the purposes of horticultural exhibitions, the *Azalea* is altogether unapproached; and as the plants which are most attractive at exhibitions are most highly decorative within the garden precincts, it may safely be affirmed that in its season the *Azalea* stands without a rival. Those who have ever seen the magnificent specimens annually exhibited at the great metropolitan flower-shows—dense bushes clothed from the base upwards, with an unbroken sheet of flamed-carmine, crimson, or scarlet on the one hand, and of pure snowy-white on the other, will at once admit, that, as floral objects distinguished by grandeur of proportion, symmetry and beauty, the *Azaleas* are the first to be remembered, and the last to be forgotten.

Without entering on any lengthened remarks upon the first introduced species, or attempting to trace out the origin of the numerous beautiful hybrid varieties which have at successive periods appeared to adorn the collections in British gardens, it may be of some interest to advert briefly to the distinguishing habits of the earlier species, the various individual features of which, as to growth, bloom, and colour, have gradually contributed to the production of the charming varieties we now possess, the excellencies of one kind being made to blend with those of another, (notwithstanding that both might be possessed of defective characteristics), so as to yield varieties of higher merit.

NEW INDIAN AZALEAS.

The first imported species, *A. indica*, introduced in 1808, was a neat, half-erect, woody-stemmed species, with, flame-red blossoms, defective from their loose arrangement. and starry outline, but the plants evidently distinguished by constitutional hardiness and longevity. *A. indica alba* (*ledifolia*), introduced in 1819, was a semi-deciduous shrub, of dwarf branching habit, and producing a profusion of large snowy-white fragrant blossoms. *A. indica purpurea plena*, (1819) was a thinly-branched rusty-barked dwarf shrub, with semi-double purplish-lilac blossoms, defective in form and colour. *A. indica phœnicea* (1824), was a robust, strong growing erect, hard-wooded shrub, of sub-evergreen habit, bearing comparatively large purple flowers. *A. Danielsiana* (1830), was a low densely-branched hard-wooded shrub, of sub-evergreen habit, with neat, smallish, glossy, dark green foliage, and remarkable over all the preceding, for its profusion of brilliant flame-crimson blossoms. *A. variegata*, and *A. lateritia* (1832), were of comparatively dwarf habit, slender, neat, and densely-branched, semi-deciduous, with comparatively small foliage, and beautiful compact bell-shaped blossoms, the former white, delicately surfaced with salmon-rose, and the latter of an uniform rich salmon or brick-red colour. The two last have long been regarded as models of perfection in the form of their blossoms; but they have a constitutional tendency to be shorter lived than other kinds, arising perhaps from their being less woody in structure, and probably also from a wearing out of their vigour consequent upon their tendency to excessive fertility of bloom. These defects in the constitution of varieties not even yet surpassed in other respects, have led to many attempts on the part of cultivators, to obtain in connection with the beautiful, even, cup-shaped outline of bloom which they possess, a more robust hardy ligneous growth. Those species and varieties which possess this desirable vigour and hardihood of constitution, but which were yet undesirable in themselves on account of the paucity or inferiority of their blossoms, have been blended by hybridisation with those possessing the opposite requisite qualities of abundant and superior flowers; and thus has eventually arisen the race of splendid varieties which are now so much prized as ornamental conservatory objects in the spring and early summer months.

Those cultivators whose experience extends over the entire period since the first of the species was introduced, will readily trace the parentage of the recognised favourites of subsequent years, now in their turn replaced by others still more highly esteemed. It would appear impossible to mistake the relationship of such beautiful old kinds as *A. Smithii coccinea*, and *splendens*, with the original *A. indica*; or that of the more robust sub-evergreen, large violet-purple, and rose-blossomed *A. speciosissima*, *Triumphans*, *Jenkinsonii*, and *arborea purpurea*, with *A. phœnicea*. Another section, represented by *A. optima*, *refulgens*, *Apolla*, and *magniflora*, all of which are now being supplanted by newer kinds of higher merit, blend unmistakeably, the robust constitutional vigour, sub-evergreen habit, and large flowers of *A. phœnicea* and *Danielsiana*, with the intensely vivid tints of *A. ignescens*. The *A. indica alba* or *ledifolia*, so long the pride of every collection, on account of its pure white flowers, has almost disappeared except for the purpose of early forcing, its somewhat rusty stems, dull green hue, and scanty foliage, having been corrected by union with varieties of the *phœnicea* section, the produce being the still more beautiful and noble forms known as *A. phœnicea alba*, *alba magna*, *Fielder's White*, *The Bride*, &c.; whilst, in the neat, slender, much-branched, moderately-vigorous habit observable in *A. Stanleyana*, *Gem*, *Criterion*, *Admiration*, and others, are readily to be recognised the parentage of *A. variegata*, and *lateritia*, blending with the more robust ligneous growth of *A. Danielsiana*, the fine symmetry of bloom present in *A. variegata* and *lateritia* being preserved. The varieties above named are merely cited as some of the meritorious ones which appeared at no very remote date from the introduction of the species, and are not to be taken as instances of the finest kinds which now exist; some notices of which will be found appended to this article.

Besides the invaluable qualities of this group of plants, to be found in the almost unequalled prolificacy of bloom, and brilliancy of colour which it presents during its usual season of display, it possesses another of high importance, in its special adaptation for forcing into early bloom. Though a few of the varieties are more suited for this purpose than others, yet nearly the whole of the numerous kinds may, by an early maturation of the current

year's growth, be brought into successive bloom through the winter, spring, and early summer months; and from their capability of enduring, subsequently, a cool yet genial temperature, there are few if any greenhouse plants that so well repay the extra attention and care thus bestowed upon them.

The culture of Indian *Azaleas*, is so generally well known, that it will be unnecessary to do more than offer broad and general rules for the guidance of the amateur cultivator. Heath-soil or peat is the most natural earth for the growth of the entire family, and where this happens to be defective in quality, from the absence of vegetable fibre in due proportion, there are two plain but efficient means of improving it: the first, is simply mechanical, the sifting away of a portion of the smallest dust-like earthy matter through a fine sieve about one-eighth of an inch in the mesh, thus giving to what remains a more open texture; the second is, by adding the deficient element, in the form of the thin surface parings from any turfy heath-soil, which turfy matter should be rubbed through a sieve about three-quarters of an inch in the mesh, rejecting only that portion which cannot be made to pass through. Turfy soil of this nature, may be obtained from almost any barren heath-moor, either upon its elevated knolls, or on its declivities; and when thus prepared and added to the peat earth deficient in vegetable matter, the two blended will form an efficient mixture for the purpose of cultivation. A judicious preparation and arrangement of the soil, secures that porous texture in the mass, which is essential for maintaining the due distribution of moisture, by which means alone the roots of plants are enabled to assimilate their food. Such conditions are based upon a well known general law in vegetable physiology, that the mechanical fitness of soils, regulates and determines the mean force of decomposition in the nutritive agents which they contain. All successful cultivation of plants, implies a practical recognition of this law; its operation being limited by the natural fitness, or otherwise, of the agents on which it operates; every deviation from it *restricts* the growth of the plant within a given limit, while in the ratio in which its requirements are met will the growth of the plant be *augmented*.

The varieties of Indian *Azalea* in general cultivation, may be classed in two sections, the first including such as are semi-deciduous, and the second such as are sub-evergreen. The semi-deciduous section is represented by the smaller-leaved slender varieties, allied to *A. variegata*, *Gledstanesii*, and *lateritia*, and the sub-evergreen section is represented by the robust harder-wooded *A. phœnicea*, &c. These differences of habit admit of a corresponding difference of treatment. The more densely and smaller-branched varieties of softer growth, being constitutionally less vigorous, should, as a general rule, be restricted to pots proportionately smaller than the others; whilst the more vigorous sorts of firmer growth may be cultivated in larger pots. The smaller kinds also require a warmer though thoroughly ventilated atmosphere during their resting period in winter, whilst the robust section adapt themselves to the cooler conditions of a well-regulated common greenhouse. There is also a difference in respect to watering. The varieties belonging to the section inclined to a deciduous habit, require more caution than the evergreen robust growing sorts, which are more accommodating to the ordinary routine of waterings. It is almost superfluous to name the importance of attending to a due pressure of the soil in potting. As a general rule, all plants physiologically allied in growth and structure to the *Azalea*, require a uniformly firm condition of the soil, to avert undue evaporation, the roots being too fine to admit of exposure to extremes of drought and moisture without serious injury. As many of the finer varieties are characterised by excessive fertility of bloom, it is requisite where high culture is sought, that as early as possible after the flowering period, the decaying flower stems should be carefully pinched off, all at one time if possible, and the partially exhausted vigour of the plants again restored by placing them in a genial moist temperature of about 60° by fire-heat, rising to 75° by sun-heat, for a few weeks, until the requisite extent of growth is obtained. This being secured, the temperature should be lowered, a drier atmosphere maintained, and the plants fully exposed to ordinary light, but protected for a few hours daily from intense sunlight, until the extremities of their shoots or branches have become firm. After they have reached this condition, the plants may be gradually exposed to the temperature of a cool greenhouse, or placed upon an east or south-east border for a few weeks in fine summer weather; but, in the event of heavy rains, they should be sheltered in a well

ventilated greenhouse, screened from hot sunlight, and ultimately removed to a cool judiciously aired house in autumn, until required to be excited into bloom, successively for winter, spring, or early summer decoration.

The varieties below enumerated, in addition to those we have figured, are recommended as a selection of the finest now in cultivation; they are of proved excellence, as regards the important particulars of habit of growth and profusion of bloom, as well as in the form, size, and colour of their flowers, and in the picturesque effect they are capable of producing. The annexed list, therefore, includes not only those varieties of first-class merit which are best suited for competition, but also those which are specially adapted for decoration in the drawing-room, the conservatory, or the greenhouse. The sterling old varieties, *Gledstanesii*, *variegata*, and *lateritia*, moreover, should not be passed over, where proper appliances for their successful culture are available.

SELECT INDIAN AZALEAS.

Admiration: white, with carmine flakes or stripes.
Beauty of Europe: white, striped with rosy carmine; picturesque.
Bride: fine white; effective from its wax-like petals.
Cedo Nulli: fine purple, richly spotted; a model as to form, and the finest of its colour.
Chelsoni: orange-scarlet.
Crispiflora: rich rosy-lake, with elegantly crisped margins; a fine late variety.
Delecta: large showy rose.
Duke of Wellington: fine large light scarlet.
Eulalie (Van Geert): large blush pink, with rich picturesque spots.
Gledstanesii formosa: white, with cerise carmine stripes.
Glory of Sunning-hill: semidouble rosy-salmon; flowers in profuse clusters.
Gem: rich flamed-salmon; of chaste model form.
Holfordiana: fine large purple rose.
Herzogin Adelhaide Van Nassau: very large orange-scarlet; a splendid variety.
Herzog Adolph Van Nassau: large dark rose, finely spotted.
Illustris nova: vivid orange-scarlet; free.
Illustris alba: white, striped with violet.
Iveryana: fine large white, with rose stripes.
Juliana: orange-tinted scarlet, large fine.
Louis Margottin: fine large semidouble white.
Louis Napoleon: very attractive violet crimson; semidouble, picturesque.
Madame Miellez: fine large white, with purple streaks.
Model: clear rose, spotted; a beautiful exhibition variety.
Modesta: semidouble rose or pink; rich and effective.
Perfecta elegans: fine scarlet, well spotted.
Perryana: rich orange-tinted scarlet.
Petuniæflora: purplish-rose.
Princess Bathilde Van Dessau: fine bright purple-crimson, richly spotted.
Roi Leopold: clear unspotted salmon, or flame colour.
Rosea elegans: fine soft rose.
Rosy Circle: bright rosy pink, of a new shade; a fine variety blooming in succession.
Sir Charles Napier: fine large light-flame colour.
Stanleyana: fine soft carmine-scarlet; model form.
Variegata superba: large clear salmon ground, with elegantly splashed white margin.

1. *Torenia pulcherrima.*

2. *Gardenia radicans major.*

Miss Sowerby del. C.T. Roscarberg zinco.

PLATE XXIV.

TORENIA PULCHERRIMA.

(Fig. 1.)

THE beautiful form of the charming *Torenia asiatica*, represented in our Plate, was raised from seeds received from India, by the Messrs. J. & C. Lee, of the Hammersmith Nursery, to whose kindness we are indebted for the opportunity of publishing the accompanying illustration, made from plants which have been flowering freely with them during the past autumn. Beautiful as is the well-known *T. asiatica*, there can be no doubt that the new variety is infinitely superior in point of beauty; indeed, its rich velvety colours are such that no artistic skill can adequately represent them. In habit it is similar to the older kind, as it is also in the general character and marking of its flowers, its superiority residing in the richness of its colours and the striking contrast they present. In the form of its leaves, and its pubescent surface, it rather resembles the Chinese *T. concolor*. The plant is of neat branching growth, naturally decumbent, somewhat more frutescent in character than *T. asiatica*, and therefore admirably adapted for pot-culture.

T. asiatica, var. pulcherrima: branches quadrangular, and as well as the leaves petioles and calyces, pubescent with short spreading hairs. Leaves broad ovate, crenately-serrated, scarcely stalked. Flowers axillary, on long pedicels; the calyx-tube straight not arching, nearly equal, scarcely larger on the dorsal angle; the corolla large, ringent, its tube funnel-shaped and decurved, deep purple, its limb two-lipped, the upper lip large, concave, fine rich violet blue, the lower lip three-lobed, its lateral lobes almost entirely occupied by a rich velvety intense maroon-purple blotch, while the middle lobe has a transverse blotch of the same rich colour just within a narrow border of the violet ground colour, and a large central white blotch, the brilliancy of which is intensified by its contiguity to the rich deep purple tints of the darker blotch.—M.

Like *Torenia asiatica*, this plant grows in pots in a warm greenhouse; and trained into a bush-like mass, or over ornamental trellis-work, it must form a charming object for decorative purposes. Judging from its remarkably luxuriant and diffuse growth, a lower temperature than that to which the species of this genus are generally subjected, should be afforded to it—a warm greenhouse or summer-pit being suitable for it through the period of rest which should be afforded after the requisite extent of growth has been secured. During the growing period, attention should be specially directed towards securing a densely bushy habit, by pinching off repeatedly the growing extremities of the shoots before they become much elongated: this treatment secures a larger proportion of lateral growth than would otherwise be obtained, such growth being most favourable for a succession of bloom. This practice, of diminishing the temperature during the resting period, so as to restrict the growth of the plant, in cases where excessive vigour is unfavourable to fertility, is supported by Mr. Fortune's remarks upon *T. concolor*, as seen in its native habitats. He observes: "After the flowering season is past, the dry weather sets in, and the stems and leaves shrivel up, and remain in this state during the winter months, when the temperature is sometimes down very near to the freezing point. During the hot and damp summer months, it grows again with great vigour, and forms its flowers in great profusion." These remarks point to a fact of great practical value, which is too much lost sight of by cultivators in general; namely, that to those plants in which a naturally free habit is liable to attain excessive

development during the growing period, Nature has afforded a period of rest, in the shape of a diminished circulation of vital power, more or less equivalent to their aggregate and cumulative power of secretion during the seasons of growth. Nearly all the known instances of cultivated plants whose constitutional vigour, apart from some artificial restriction of growth, is unfavourable to fertility in bloom or in fruit, are illustrations of this remarkable compensative law of Nature which we may see everywhere around us; for, in the application of its agencies for special or general purposes, Nature always wisely ordains a provision of means equal to its intended effects. Hence the great importance of the season of rest afforded to plants in winter, when there is a general cessation of growth; and hence also the importance, in artificial cultivation, of restricting the growth of many pot plants during summer, for the purpose of maturing their secretions in order to secure an increased amount of bloom. This result is brought about by a partial lowering of temperature, and exposure to a drier atmosphere for a few weeks previous to the flowering season; but it must be remembered that this treatment implies such an amount of attention to their early growth, as to admit of this intervening period between the proper season of growth and the formation and maturation of bloom-buds.

Nearly all the species of *Torenia* under good culture must be regarded as luxuriant growers, of biennial duration, readily passing in their growth beyond the limits favourable to fertility; but, by adopting the simple restrictions already pointed out, as to temperature and nipping the young growing points until a sufficiently large bush is formed, they may be made to take a very high position among decorative plants. Of those already in cultivation, the following are the best:—

T. asiatica: a very ornamental species of a naturally decumbent or trailing habit, and of annual or biennial duration, having smooth ovately-lanceolate toothed leaves, accompanied by comparatively large ringent blossoms of a dark purple in the tubular part; and spreading into a four-lobed limb, or border, of a delicate blue-purple, each lobe being tipped with a rich violet-purple blotch, and the front of the lower lobe blotched also with white.

T. concolor: a neat suffruticose plant, slender, diffuse, and prostrate in growth, all its parts pubescent with a covering of minute soft hairs. It differs from *T. asiatica* in its short ovate, or nearly heart-shaped bluntly toothed leaves; which, in the late summer and autumn months, are accompanied by numerous self-coloured dark violet-purple roundish-lobed blossoms.

GARDENIA RADICANS MAJOR.

(Fig. 2.)

The most desirable species of *Gardenia* have been already described in the remarks appended to Plates XVII and XVIII. The variety now illustrated—the large-flowered dwarf Cape Jasmine—is known as *Gardenia radicans major*. It is a valuable variety of that well-known species, distinguished from it by its more robust habit of growth, and its less lanceolate dark-green leathery leaves, more oval in outline than those of the parent, as well as by its larger blossoms, which are, however, similar in their snowy whiteness and exquisite odour.

Together with the allied species of this genus, our present subject is specially adapted for forcing into early bloom during the mid-winter and the early spring months, by means of exposure to a stimulating root-temperature, aided by a corresponding degree of genial warmth in the atmosphere. Its dwarf, compact, densely-branched habit, suitable for small or medium-sized pot-culture, makes it particularly adapted for the most limited collections of warm greenhouse plants. After the season of bloom is past, and the subsequent annual growth is secured by means of the stimulants already mentioned, it only requires a tolerably close, cool atmosphere, in frames, pits, or cool houses, where it may rest secluded from dry currents of air during the summer and autumn months. Where a varied succession of flowers is required for drawing-room vases or bouquets, a succession of the *Gardenia* is indispensable; its rich perfume not being supplied by any other plant. It is of the greatest importance to maintain a humid atmosphere during the growing season of the plants, by means of daily syringings, morning and evening.

Gladiolus.

1. Adonis. 2. Danaé. 3. Archimède.

PLATE XXV.

GLADIOLUS GANDAVENSIS.

OUR Plate affords representations of some varieties of a very showy race of the *Gladiolus* family, which have been produced by means of hybridation from *G. natalensis*. This family of plants, consisting almost wholly of species eminently beautiful in themselves, has been so far altered and improved under the hand of the cultivator as to rank among the most conspicuous ornaments of the parterre. The varieties we have here represented (belonging to what is known as the *gandavensis* section) are not indeed equal to some others in brilliancy of colour, but they have been sketched as suitable for the purpose of showing the effective style of growth to which this race of *Gladioli* has been brought. We may hereafter have occasion to call attention to the same group, and defer referring more particularly to the leading kinds until that opportunity. Our figures are as follows :—

Fig. 1. ADONIS; light reddish or rosy salmon, shaded with crimson.

Fig. 2. DANAË; large blush-white, richly suffused with rose on the lower segments.

Fig. 3. ARCHIMEDES; very large rich flame-red, opening a rich carmine.

The numerous species of the genus *Gladiolus*, and the very ornamental hybrid varieties obtained in gardens, both in England and on the Continent, by means of crossing, have conduced to place this tribe of hardy bulbous plants among the most effective for garden decoration, throughout the summer and autumn months. Those varieties which are known in trade collections as forming the *gandavensis* section, and to which our illustrations belong, were originally raised in Belgium, between *Gladiolus natalensis*, or *psittacinus*, the African orange-red Parrot-Gladiole,—so named from the resemblance in form of the unopened flowers to the beak of the parrot, and *G. oppositiflorus*, a species from Madagascar. The progeny of these two species, being remarkably fertile in variety, has yielded a race of hybridised forms which, in the admixture and variety, as well as vividness, of their colours, as also in the stately habit of their growth, rival, if they do not surpass, every genus of hardy bulbs.

The varieties of this *gandavensis* section are the most vigorous and effective in the genus, and are specially valuable on account of their hardiness. Their robust, erect growth, sword-shaped leaves, and magnificent flower-scapes rising from three to five feet in height, and terminating in long, dense racemes of large spreading blossoms, each from two and a-half inches to four inches in diameter, altogether impart to them a peculiar grandeur, as they rise above plants of lower stature, or throw out their brilliant colours in contrast to masses of evergreens.

The colours which are found among them comprise the most brilliant tints of orange, scarlet, and vermilion, upon rich salmon-red and carmine grounds, and include intermediate and self colours, in rich contrast, varying from white with violet-crimson stripes, to glowing carmine-crimson and orange-red, and from the most delicate salmony blush, with feathered crimson stripes, to violet and carnation-rose. Thus, from white up to rose and carmine, and

from vermilion to the deepest shades of orange-scarlet, this truly splendid group affords a combination of the richest colours which are found among flowers.

The entire family of *Gladiolus* is well adapted for flower-garden culture, the varieties being suitable either for forming small beds or larger groups; for planting in small masses in the foreground of select plantations of ornamental trees and shrubs; for yielding a rich florid effect in the background of flower-borders; or for presenting fine contrasts as conspicuous clusters in alternating spaces between evergreen shrubs. They thrive in all ordinary garden loamy soils of an open sandy quality, and may, in barren soils, be much improved in growth by the addition of leaf mould, all stable manure being injurious. They have succeeded well, and produced noble flower-spikes in deep, sandy, pulverised heath soil upon a dry sub-strata. In planting groups or larger masses, the bulbs (or corms, as they are more correctly termed) should be placed at the depth of from four to six inches, each being surrounded with pure river sand, before being finally covered with soil. In October, or early in November, when the stems show symptoms of decay, the roots should be taken up and thoroughly dried, either by exposure to sunlight, or by being spread out in a dry, warm shed; then, after cutting off the flower-stems, they should be stored away in a cool room or store-house, which can be ventilated in mild weather, and here they must be preserved from frost until the following April or May, which is the usual period for planting. A few months of perfect rest matures the vital secretions of the summer's growth for the bloom of the ensuing season. The results of very extensive experience have shown that, provided the bulbs are in a favourable dormant state, they may safely be kept dry for planting throughout the month of May, in situations where the soil is retentive and cold, or whenever cold spring rains prevail throughout that month; the exceptions to this being in favour of sheltered situations, and warm dry subsoils.

Here it may be laid down as a rule, that when intended to be thus grown in the open beds, the bulbs should not be planted earlier than the period before stated; yet, where an earlier display of their gorgeous flowers is required, they may be forwarded by cultivation in pots, and kept until all danger from cold and heavy rains is past, and then may be safely planted out early in June, which will admit of a vigorous bloom by midsummer. For this purpose bulbs should be planted in pots in February or March, and thus prepared, their protection under glass within a cold east or north frame or pit, will be sufficient until the time for planting out.

The best soil for pot culture is made up of equal parts of pulverised turfy loam, peat, and leaf-mould, well incorporated with one-fourth part of the whole, of sand. Water should only be applied in proportion to the amount of root development, in the first stage of growth, one or two applications each week being sufficient. It should be administered more freely and proportionately oftener with advancing growth; and when root-action is in full play, the pots should on no account be allowed to remain through the night unwatered, if the soil is dry or parched. A slight dew-like sprinkling of tepid water in the early morning hours, in bright sunny weather, will prove beneficial to the thin pulpless foliage, in the case of potted frame-grown plants.

Besides being valuable for garden decoration, this highly ornamental tribe of plants is admirably adapted for the purpose of artistic arrangement, as bouquets of cut flowers in large vases, &c., for their scapes or flowering stems continue to expand their glowing tinted blossoms in succession for a considerable period, when placed in water. The beautiful long sword-shaped racemes of the white and blush-coloured varieties, dashed with rich violet-crimson, are highly picturesque and graceful, when seen by artificial light, in vestibules, or entrance halls. A remarkable illustration of the retention of vital power is seen in these noble flowers, for when dissevered from the parent-roots for employment as artificial decorations, they continue to unfold in water as freely and beautifully when exposed in the open air, as when partially protected within doors.

The two other sections of *Gladiolus* which are of importance in ornamental gardening, comprising the fine hybrids of *G. ramosus*, and *G. cardinalis*, we must notice on some other occasion.

Pompone Chrysanthemums.

3. St. Justia. ..... 4. Miss Towers.

8. Satanella. ..... 6. Queen of Beauties.

Miss Sowerby delt. C.T. Rosenberg zinco.

Printed by C.F. Cheffins & Sons, London.

PLATE XXVI.

NEW POMPONE CHRYSANTHEMUMS.

THE varieties forming the accompanying group are seedlings raised by M. Pele, of Paris, who was also the raiser of the fine kinds known as *Solfaterre, Surprise, Sacramento, Argentine,* &c. They belong to the early blooming Pompone section,—a group, the habit of which, admits with certainty of the formation of flower-buds in the most unfavourable seasons. They are of medium size as to growth, and, in point of merit, are improvements upon the varieties previously in cultivation, their superiority consisting in their greater profusion of bloom, two of them being quite unique in character, producing large, densely-flowered, thyrse-like racemes of from fifteen to twenty double, finely-formed flower-heads upon a stem. They are named :—

Fig. 3. St. Justia, (Hybrid group).—Medium-sized broad flat florets, of rich cinnamon-red, with orange centre; the flower-heads in large free terminal clusters.

Fig. 4. Miss Towers, (Pompone group),—Elegant blush white, suffused with rose; the flower-heads in large, close, thyrse-like racemes.

Fig. 6. Queen of Beauties, (Pompone group).—Beautiful rich rosy purple, with white centre; the flower-heads in profuse terminal clusters.

Fig. 8. Satanella, (large Pompone group).—Rich amber colour, changing to bright yellow, and elegantly tipped with bronze; the flower-heads large and profuse, in terminal, open branching racemes.

The great improvements which have been effected in the various classes of popular garden-flowers, are nowhere more striking in feature, nor more valuable in result, than in the Chinese *Chrysanthemum.* For the interior decoration of the conservatory and greenhouse, and for picturesque effect in the flower-garden, they are unequalled in their adaptation to the greatest diversity of soils, and in their quality of blooming in situations where many other plants would perish. Their capacity to endure the vicissitudes of our English climate, with the bare winter protection of a deep top stratum of dry leaf soil, or any similar material, (and this indeed not essential in the majority of positions,) and their habit of blooming as beautifully in the open air borders, as in portable boxes, pots, &c., or against the partial screen of a wall or trellis, are some amongst the many features which might be mentioned in favour of their cultivation. Though naturally adapted for rich and nutritive soils, they are often found thriving in barren and unfertile spots, decorating alike the cottage garden and the palace gate; their gay and long continued succession of bloom lingering onwards through the calm and dewy atmosphere of autumn, beautifying hearth and shrine and classic vase with the votive offerings of the waning year.

The *Chrysanthemum* is a native of China and Japan, and, according to Breynius, appears to have been first cultivated in Holland as early as 1688. It is recorded as having been grown by Philip Miller, in the Chelsea Botanic Garden, in 1764. The next date refers to three varieties, distinctively, purple, white, and violet, obtained from China in 1789 by M. Blanchard, a merchant of Marseilles. The first figure published in this country appeared in the *Botanical Magazine,* in 1790, and from the latter date until 1808, only eight additional varieties are recorded. From the very loose and ill-formed specimens represented in the early illustrations, it would appear that the diversity

of colour and repletion of florets in this ornamental genus, may be attributed to a natural development of constitutional fertility. The evidence of both Thunberg and Kœmpfer, who state that the native plants in China vary infinitely in colour, size, and plenitude, appears to strengthen this view, which is still more fully confirmed by the magnificent varieties, both self and parti-coloured, which are now found in the English and continental collections.

The cultivation of *Chrysanthemums* need not be explained beyond a few general remarks upon the points most requisite to be attended to in their growth for greenhouse effect and garden decoration. The varieties are generally arranged into two groups, forming the Large-flowered and the Pompone sections, the latter having Ranunculus-like blossoms.

The routine of treatment to be followed in their cultivation depends upon the object in view. If the plants are intended for exhibition, the cuttings are rooted in November and December in cold pits, in which they are preserved until February and March; but if for general conservatory and greenhouse decoration, the planting of the cuttings may be deferred until April or May, from which period onwards they are transferred to larger pots as required. The best cuttings are derived from the side or lateral shoots or from the short jointed terminal ones, the incipient buds being removed from the lower leaf-axils. Where the cuttings must be taken from the root suckers, it is important to select those which are the shortest jointed, observing the same precautions in dressing them. In the spring months from April to the middle of June, the plants should be exposed to full air and sun, and supplied occasionally with weak manure water. By the middle of June they should be removed to a more sheltered situation, fully exposed to the morning sun, yet screened from that of the afternoon; and the pots should be half plunged in soil, ashes, or gravel. The plants must have occasional waterings with liquid manure of a richer quality, until the flower-buds show colour, and during the whole of the hot summer months the foliage should be sprinkled or syringed with pure water each morning and evening, and the manure water must only be applied shortly after the soil has been well moistened with the ordinary waterings. During the summer and early warm autumn months continue *after*-waterings of liquid manure morning and evening to all large vigorous plants, syringe them freely as required, and it they are attacked with the green fly, syringe occasionally with clear or diluted tobacco water. In October place the plants, if practicable, in cold pits or in a well-ventilated greenhouse, or otherwise under a temporary covering, setting the dark varieties nearest the light to enhance the colour, and the white ones reversely to bring out the delicate tints of blush or rose. In November tie the plants out to the required form a few weeks previously to the expansion of the bloom.

The compact and bushy style of growth results from due attention to uniformly stopping or pinching out the top of the shoots at stated periods. The first stopping or extracting of the terminal bud may be done in March, or earlier, when the plants are five or six inches in height, and the last operation of this kind may be about the last week in July. Where plants for competition are required, and the artificial mode of pegging the growth down over the surface of the soil at several stated periods is also resorted to; the last operation of this kind may be done in July or August, after which the after-growth is to be tied up to the intended outline as it progresses. To obtain flowers of a large size the number of buds must be restricted to one or two on each stem.

For open ground culture the parent plants may be taken up and divided for replanting in March or April. Three stems or suckers will be sufficient for each plant, and these when grown to six or ten inches in height may be pegged down once, to prevent attenuated growth, and each shoot produced may be tied up as it reaches to twelve or fourteen inches in height. In summer give a top or surface dressing of manure or very rich soil, and water freely each day in the evening and early morning. To secure vigorous growth apply manure water two or three times each week until the flower buds show colour; and to obtain large flowers from open-air grown plants remove all side branches without bloom, and diminish the number of flower-buds as before stated, leaving only the upper ones.

Clianthus Dampieri.

Miss Sowerby del. C.T. Rosenberg sculp.

Printed by C.P. Cheffins & Sons, London.

PLATE XXVII.

CLIANTHUS DAMPIERI.

THIS extremely beautiful greenhouse plant, though comparatively new to our collections, was discovered by Dampier so long ago as 1699, on the dry sandy islands of the Archipelago of North-west Australia, which bears his name; and at a subsequent period in or near the same locality by Allan Cunningham. It is also reputed to have been observed in 1769 on the Eastern coasts of the Northern island of New Zealand by Sir Joseph Banks and Dr. Solander, when accompanying Captain Cooke in his expedition of discovery, but these distinguished naturalists do not appear to have recorded a really native habitat or locality. The most recent importations of seed afford certain evidence of its being indigenous to New Holland; though it appears that the seeds first received in this country were sent from the Missionaries' Home Station at Tauranga, and from them plants were raised by William Leveson Gower, Esq., of Titsey Place, Godstone, Surrey.

The *Clianthus Dampieri* forms a half-shrubby greenhouse plant of biennial character, growing from a foot and a-half to three feet in height, sub-erect and branching in habit, having greyish or hoary reddish-tinted furrowed stems, which are surfaced over with whitish silky hairs, and bear oblong pinnate leaves, each consisting of a twin row of oblong hair-fringed leaflets, clothed like the stems with silky hairs. The large pendent flowers are produced in short racemes of from four to six together, at the end of numerous half-erect axillary peduncles and are of a brilliant crimson-red. These flowers are each nearly four inches in length, and consist of a large reflexed oblong-ovate pointed upper petal or standard, the lower pair, forming the keel, extending in the opposite direction, falcate or sickle-shaped in outline, and the two smaller side petals pressed against the base of the keel. The beauty of the flowers is considerably enhanced by the effect of a large, prominent, shining, velvety, purplish-black boss in front, at the base of the upper petal. A plant with blossoms of such gorgeous colours, so large in size, and so peculiar in form as those now described, may deservedly claim the designation of THE GLORY PEA, by which it is occasionally known.

The unusual beauty of the *Clianthus* has tended to bring it into notice with all cultivators of fine plants, but the results of practical experience in its culture have proved that extreme care and judgment are required to sustain its health and vigour throughout the winter season. The soil which has hitherto been found most suitable to its culture, consists of pulverised turfy hazel-loam, with subordinate proportions of leaf-soil and sand, well mixed. The quick vegetation of the plant during the summer months, as well as its biennial style of growth, indicate the unfitness of peat-earth for its cultivation; whilst the soft and hoary clothing of its surface affords significant indication of the injury likely to arise from exposure to any position in the greenhouse, where in long-continued damp or frosty weather the exhalations of surface or atmospheric moisture would be allowed to rest upon its foliage. To the foregoing practical conclusions it may be added, that carefulness in the process of watering during the resting months of winter, and cautious but sufficient ventilation of the greenhouse or conservatory in which the

plants are kept during the period adverted to, are indispensable conditions towards maintaining that vitality which is essential to its renewal of growth for bloom in spring.

Judging from what experience has been had of the habit of the plant now illustrated, we think that its management by pot culture will generally be attended with considerable risk, not only while young, but also in its maturer stages of growth when nearing the blooming period. Experienced and observant cultivators will, from its external features, recognise in it a subject naturally difficult to manage, apart from the use of the most appropriate means, involving suitable plant houses judiciously ventilated, and a regard to the fitness of soil, and its skilful application in potting. It is well known to extensive trade cultivators, that many valuable plants of suffruticose habit, yet not strictly perennial in duration, are more difficult to manage than others, partly in consequence of a constitutional tendency to exhaust their vigour in the first season's growth: which exhaustion appears to affect their vital energy, so far as often to repel ordinary efforts to excite a second time, and to carry to a higher degree, the vigour requisite for blooming in the season that follows. When the true character of the plant in question is physiologically considered, it will appear that after the highest cumulative point of vigour in the first year is obtained, in specimens whose bloom is not given out until the second year, there must, as a natural condition of its growth, intervene a constitutional tendency of the entire plant to remain dormant for a period of some months' duration; the tender root-fibres being all this time exposed to the chilling temperature of cold soil in borders, or to the fluctuating currents of moisture in pots. The diminished vitality of the organs of the plant, renders it under such conditions unable to carry on its functions of absorption and secretion, and hence it is not difficult to account for the fatal losses sustained in the rearing of this, as well as of other plants of similar structure.

Notwithstanding, however, the risk attendant upon its culture, such is the almost unequalled brilliancy of its blossoms, that every lover of fine flowering plants will probably be eager to possess it. Mr. James Veitch was, we believe, the first to exhibit it in a flowering state under pot-culture. It has subsequently been found to succeed admirably in the open air, planted against a wall in Mr. Veitch's nursery establishment at Exeter, in which situation it formed, during the summer months, a much more splendid object than when grown in pots. This fact affords good reason to hope, that it may be found generally to give out its highest vigour under a similar course of treatment. We may here remark that, in advocating the general exclusion of peat from the soil in which this *Clianthus* is planted, its cultivation in pots was principally referred to; and though it is found that numerous plants, differing materially in structure and habit of growth, attain a remarkable vigour during our summer, on being planted in open-air peat beds, or borders, yet the peculiar habit and style of growth which occurs in the *Clianthus Dampieri* do not seem to indicate the fitness of such a soil in this case.

In suggesting further precautions to be observed during the various stages of its growth, it may be observed, that in whatever situation the seeds are made to germinate, the young plants should never be shut up close at night in a state of dampness, but should be efficiently ventilated after watering, or, which is perhaps preferable, morning waterings should be given instead. When the seedlings are sufficiently developed, they must be potted separately. This process of potting involves a physiological law or principle of considerable importance, upon the right application of which the success of all after-attentions and rules very much depends. To be efficiently performed, this process involves the recognition of a very simple, but universal physiological principle in the artificial culture of plants, namely, that plants are only able to perform their functions aright, in proportion as their roots are so disposed as to maintain a healthy reciprocal action with the external organs or leaves. This reciprocal action is mainly to be secured by placing the roots so that they are brought within the influence of the atmosphere. An intelligent cultivator of plants will at once recognise, in accordance with this principle, the proper position of what is commonly called the "ball" of soil and roots in the potting of plants; but it should be borne in mind, that the elevation or depression of the ball or mass of earth does not necessarily determine the position of the roots in relation to the exact influence brought to bear upon them by the agencies around them. Though the proper

amount of soil placed about the roots of a seedling or rooted cutting, in the *first* process of potting, may, as a general rule (though this is not obviously recognised), leave the body of roots within reach of the beneficial influence of light, air, &c., in consequence of their nearness to the surface, yet it too often happens, that in the second potting, and the subsequent repetitions of the process, the ball is placed so far below the rim of the pot to which it is transferred, as to require an additional stratum of soil upon the surface. This lessens the amount of action of solar light and heat upon the under roots, in consequence of their increased depth below the surface; and thus by a gross inversion of the important principle previously mentioned—by a forgetfulness that the power of plants to secrete and appropriate the vital elements of growth, is in proportion to the healthy action of the roots, every successive depression of the root-ball lessens the power of the vessels to convey nutrition to the external organs, until a languid and morbid circulation, a collapsed state of the leaves, and a loss of power to form further secretions, ensues, soon to be followed by the death of the plant. The importance of a *due* elevation of the roots of plants under artificial or pot-culture, cannot be too strongly insisted upon; and in the case of plants of an annual or biennial suffruticose habit, like to *Clianthus Dampieri*, it may be regarded as an essential condition of health and vigour under artificial culture. The shorter the natural duration of life in plants, the more essential it is that the root and leaf action should be duly balanced in favour of the highest development of growth and bloom.

As a general rule in potting seedlings of delicate plants, whether in their youngest growth, or in succeeding transfers to larger pots, the stem should not be placed so that the collar or point where the stem rises from the cotyledon or seed-lobes should be covered by the soil. By the observance of this rule, the roots are retained at such a depth from the surface, that the vital agencies of light, air, &c.—the due action of which appears to be essential to vigorous life in all plants whose habit is unfavourable to the emission of roots from the ascending stem—can exert their proper influence; and this secures (other conditions being equal) that healthy circulation of the vital secretions dependent upon a reciprocal action between the roots and the leaves.

When the seedling plants become established in their pots, they should be placed in a well ventilated house or pit, where they can be accommodated with a genial growth-exciting atmosphere. Syringing the plants, even with tepid water, should be dispensed with as far as practicable, and where it is resorted to, the operation should be performed in the morning by preference, in order to avoid any excess of moisture upon the plants over-night. The pit should never be closed at night with the foliage of the plants wet. Suspended moisture long continued upon the surface of villose, or woolly-leaved plants of delicate habit, and of annual or biennial duration, especially when they are preserved within a close unventilated atmosphere for a period of ten or twelve hours, is often the radical cause of constitutional debility ending in death; and such a condition of moisture acting on the slightest puncture, or injury, in the delicately organised tissue of short-lived plants, is in very many instances the "plague-spot" of their whole existence. Fully established plants for winter protection, should, however otherwise favourably situated, be placed upon partially-elevated shelves or stages, within a house of genial intermediate green-house or conservatory temperature, maintained at a proper minimum of heat by judicious ventilation. Plants of herbaceous texture and of annual or biennial duration, especially after their season of natural growth, are more sensibly affected by sudden or extreme changes of temperature, than those of a more ligneous and perennial character. Every intelligent observer of the various forms and types of vegetable structure, must have noticed that many biennial plants, both of a strictly herbaceous growth, and also of an intermediate suffruticose habit, appear in their first year's growth to have so far exhausted their vital energy, as to be comparatively unable to secrete more than a very limited amount of nutritive matter, or to absorb but a very small proportion of the water which would appear needful to sustain their future growth—a state of things which, in part, arises from their slender vitality, and partly from a wise provision of Nature, which demands an almost total cessation of growth as a means of husbanding their accumulated strength and secretions, throughout the intervening period of winter rest, in furtherance of the ensuing summer's bloom. To prevent water being applied in excess upon the surface soil, or in too immediate contact with the

stem, some cultivators have adopted the plan of placing the pots containing specimen plants in pans or saucers, and supplying water in these freely at occasional periods; and others, with equally cautious judgment, have applied the liquid to the surface soil with a tubed, in preference to an ordinary rose or punctured water-pot. Both methods are commendable, if judiciously applied. There are few plants which are not benefited when in vigorous health, by a liberal supply of water, given in a pan or feeder at stated periods, when moisture is really required. The supply of water, as ordinarily given to vigorous plants in pots, is very fluctuating, often lavish to excess on the surface where generally the least is required, and too rapid in its circulation below where it is most needed. Hence the importance of plants being occasionally compensated, in summer, by the method adverted to; whilst the common mode of surface-watering is adopted as the most generally convenient.

With the advancing spring months, the plants may be more freely ventilated by the admission of air, and such as are in vigorous growth, and requiring, by the extension or coiling of their roots, a shift or transfer to larger pots, should be attended to, and again replaced in a temperature sufficiently warm and genial to stimulate a slow root-growth. The root-temperature should never (as far as present experience warrants) exceed that afforded by the bare surface of a warm tan-bed, or the genial moisture of a tank, (about 65—70°) for a few weeks, until a vigorous root-growth is commenced; and this should be given within a well ventilated house. Subsequently, the plants may be gradually removed to a cooler temperature, such as that afforded on a greenhouse or conservatory stage, where an intermediate heat is maintained, simply by early-closing of the house, as the external atmosphere may require, and where ordinary syringing is dispensed with; a sufficiently humid atmosphere being maintained by a free application of water over the ground surface and paths. When the plants are preserved through the summer months in pits, the growth should be continued by day with a tolerably close atmosphere, and free exposure to light, shading slightly for a few hours from intense sunlight. At night it should never be forgotten to leave a partial but thorough ventilation, after having previously dried off all moist exhalations from the leaf-growth, by throwing the lights back for a short time, and again closing them, except in so far as allowing a slight admission of air at the outer side of each end light.

In planting out for summer-blooming against a wall, plants of the previous season's raising are to be preferred, as the likeliest to form a profusion of flower-buds. A deep well-trenched border, having a dry subsoil, or its only substitute, a well-drained artificial bottom, should be selected. In either case, such a selection will admit neither of a cold surface-moisture, resting around the stems in continued damp weather, nor of an excessively parched state of the soil existing during the prevalence of summer-drought. Where the aspect of the border can be chosen, a south-east one is to be preferred, as a partial preservative from the hot afternoon sun; nevertheless, other aspects may be equally favourable, the fine open ground specimen previously adverted to having been produced upon a warm south-west aspect. A strict attention to the conditions above named, will favourably modify the effects of full exposure to the sun; and in a fluctuating season will be essential to securing maturity of growth and bloom. The soil recommended for open ground culture, is a mixture of two-thirds well pulverised fibrous sandy loam, with the remaining third of well exposed and pulverised sandy heath-soil. Where the loamy ingredient is too tenacious and heavy, the quantities may be equally apportioned, and where the freshness of the same admits of no alternative, the porosity of the mass should be maintained, by adding well-broken charcoal, potsherds, or sandstone, to the amount of one-fifth of the whole. The border should have a slight inclination from the wall. When water is applied, it should be given outwardly away from the stem, and not upon it, for the reasons previously explained; while as a general rule, dry foliage with a healthy circulation by night is to be preferred to a long suspended state of moisture, demanding a more rapid secretion, and more elaborative power shan that of which the comparatively dry and pulpless structure of the plant will admit.

1. Dipteracanthus affinis...2. Gloxinia Princess Alice.
3. G.-Cartoni robusta.... ...4. G.-Mathilde-de-Landeraisin.

Miss Sowerby del.t C.T.Rosenberg zinco.

Printed by C.E.Cheffins & Sons, London

PLATE XXVIII.

DIPTERACANTHUS AFFINIS.

(Fig. 1.)

THIS showy Acanthaceous hothouse shrub is a native of Brazil. It has glossy oblong-acuminate laurel-like leaves, of leathery texture, prominently nerved on the under surface, and bears large funnel-shaped blossoms from the axils of the upper leaves. These blossoms are two inches in diameter, of a brilliant scarlet, and may be not inaptly compared to a scarlet-flowered Petunia; in brilliance of colour they will sustain a comparison with the well-known *Verbena Melindres*, or the equally well-known *Salvia splendens*.

The plant appears to luxuriate in equal parts of well pulverised fibrous loam and peat, with the ordinary admixture of sand. During its spring and summer growth, it should be encouraged to form lateral or side-branches, by training its somewhat elongated stems round a cylindrical trellis, or by pinching off the extremities of the shoots, to induce a further development of the lower leaf-buds. After the spring and summer growth is obtained, the plant should be allowed to elaborate and mature the young branches, under a partially diminished temperature, being kept for the purpose, either in a close, warm greenhouse, or in the coolest part of the stove; and then, after a few weeks, it may be returned to the higher temperature and more genial atmosphere of the stove.

NEW GLOXINIAS.

(Figs. 2, 3, 4.)

The varieties of *Gloxinia* represented in the accompanying group are amongst the most distinct that have come under our notice during the last year. They are as follows:—

Fig. 2. G. Princess Alice.—A distinct and beautiful variety of the erect-flowered section, having a purplish-shaded tube, spotted at the base, and expanding into a broad, well-formed rich, reddish-crimson limb or border, flushed with darker crimson around the throat.

Fig. 3. G. Cartoni robusta.—A finely-formed large flower, of a beautifully-shaded bright rose, passing into white at the margin. This is the best variety of its colour as yet raised, being of good substance, and having a noble outline.

Fig. 4. G. Mathilde de Landevoisin.—A remarkably distinct and beautiful variety, having the throat white, shaded with purplish-blue, and expanding into richly mottled porcelain-blue lobes, which are streaked and flushed with darker purple, passing off to white at the margin. It is very effectively distinct and novel.

We have already [*see* Plate V.] given a group of choice varieties of this ornamental family, but on account of the progressive improvement which has taken place in the present among many other flowers, we are now enabled to offer representations of some more recent kinds, which are worthy of being added to collections generally. *G. Cartoni robusta*, though not quite new, is nevertheless the finest and most beautiful variety in its class, and we much regret that our artists have not been able to bring out the soft, yet rich, rose tints which are its characteristics. *G. Mathilde*

de Landevoisin, which has already found its way into some private collections, is also one of the most novel and effectively beautiful in its class, and a desideratum in all selections. The diverse form of the flower-tubes in this genus, their exceedingly rich and varied colours, the long-continued succession of bloom which the plants afford, their dwarf habit of growth, and their easy culture wherever the requisite temperature can be afforded, render them deservedly popular among hothouse plants. The accommodating habit they possess, too, of remaining dormant, in any warm sequestered place, from autumn until spring, fits them especially for those establishments where hothouse space is limited, affording as it does increased facilities for the culture of other plants during the winter and early spring.

SELECT NEW GLOXINIAS.

*Alba auriculata:** snow-white tube and border, with bright cerise-crimson belt; fine form and brilliant colours.

Claude Lorraine: purple-crimson throat, with snow-white lobes, and carmine-crimson front blotches; dwarf and compact.

Countess d'Oultremont: large; fine crimson throat, with a rich outer rosy-salmon border; good form.

Hercyi: a remarkably large and noble white flower, with violet-purple belt; a splendid variety in form, substance, and purity of colour.

*Lady Emma Stanley:** crimson spotted throat, white tube and border, with a rich violet-blue belt.

*La Rosière:** white spotted tube, with a fine rosy-crimson border; effective and beautiful.

*Madame Auguste Miellez:** broad rich crimson belt, upon outer white border; tube crimson-purple within; showy.

*Madame Frederic Siesmeyer:** fine white tube and elegant purplish-blue border; beautiful.

Madonna: a chastely formed pure white, slightly fringed, with picturesque violet-crimson belt.

Marie: white throat, with large rich crimson blotch on white lip.

Mount Parnassus: a well-formed lavender-blue, with pale, spotted streak in front.

*Roi Ferdinand:** violet-purple tube, with richer throat, and broad purplish-blue limb; beautiful.

Scholastice: remarkably large pink-coloured blossoms of fine form, substance, and outline.

Sebastiano: beautiful deep salmon-rose, white tube, and spotted throat, with violet-crimson belt; extra fine.

*Serra de Estrella:** shaded crimson tube, elegantly spotted, expanding to a violet-crimson border.

Spagnoletti: beautiful, large, rich salmon-rose, of very large size, fine form, and substance.

*Thomas Lobb:** beautiful porcelain-blue border, with an inner rich purple belt, and spotted tube; extra fine.

*Wagneri:** white tube, rich rosy-crimson throat, and rosy-blush outer border; of good form, and effective.

* The varieties marked with an Asterisk belong to the erect-flowered section.

THE

ILLUSTRATED

BOUQUET,

CONSISTING OF

FIGURES WITH DESCRIPTIONS

OF

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AND

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ERRATA IN THE NUMBERING OF THE PLATES.

PLATE XLV. Fig. 1 should read Fig. 2.—Fig. 2 should read Fig. 1.

PLATE XLVIII. This Number is omitted on the Plate of Messrs. E. G. Henderson's Nursery.

PLATE LVII. should be PLATE LVI.

The Plan of Messrs. E. G. Henderson's Plant Houses is to face the back of text descriptive of Plate XLVI.

1. *Gazania splendens.* 2. *Callicarpa purpurea.*

Miss Sowerby, del^t. C. T. Rosenberg, Zinco.

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floret with a broad spot of a rich brown chocolate tint upon a black base, and close beside this is a distinct white spot on the same dark ground. The contiguity of these distinct colours helps to produce a very rich and highly ornamental effect. An interesting feature, physiologically considered, is observable in its habit of growth. The plants rise into a nearly erect position from the evening until morning, during which period the beautiful silvery under-surface of the leaves becomes very conspicuous; and they resume their more decumbent position as they feel the influences of the genial atmosphere which expands the blossoms.

As a plant of the easiest culture, adapting itself to nearly all varieties of ordinary garden-soil; yielding a continuous profusion of gorgeous-coloured blossoms from the middle of June until the latest period in autumn; requiring no support to its growth; affected neither by the summer's storm, nor the autumn's change, but blooming calmly on until the latest period, closing its magnificent flowers by night, and again unfolding them by day,—this has few rivals for the parterre, or formal flower-garden.

The scarcity of orange-coloured blossoms for large groups and beds will render this plant invaluable, its adaptation for flower-garden purposes being unequalled by any other of the same colour. Its growth is so free and vigorous, as well as neat and cleanly, that it is not subject to the attacks of thrip or red spider, by which many popular flowers are injured if underpotted, or placed in a dry arid atmosphere. For cultivation in pots, or for decoration in the open borders, or for forming broad margins, or for the front row in ribbon planting, it is strikingly adapted for display. There is, indeed, no other plant of equally dwarf and compact growth which produces so long a continuance of bloom, and remains uninjured by extreme drought. This, together with its entire freedom from all insect depredation, will confirm it in the position of one of the most brilliant and effective flowers yet introduced to the notice of cultivators. Its much-branched habit of growth favours its increase to an unlimited extent.

CALLICARPA PURPUREA.

(Fig. 2.)

The number of exotic shrubs which produce ornamental fruit during the late autumn and winter months, especially of such as are adapted for a cool greenhouse or conservatory temperature, is very limited. Amongst those, however, of this character, of recent introduction, that which forms our illustration is highly interesting and beautiful. It has passed under different names into private and trade collections, being sometimes known as *C. violacea*, sometimes as *C. lasiantha*, and sometimes as *C. purpurea*, to which it appears to bear the closest affinity. It has recently been received from China through Mr. Fortune. The various specimens which have been exhibited promise that it may become one of the prettiest of decorative fruit-bearing plants yet introduced to our collections.

It forms a medium-sized greenhouse shrub of a neat branching habit, from two to three feet in height, having hirsute stems, and acuminately-ovate leaves with serrated margins, obscurely pubescent on both sides. The blossoms are small greenish-white, produced during the late summer months, in close axillary corymbose cymes upon the current year's growth; these are succeeded by conglomerate clusters of rich violet-purple berries, which are retained upon the plant until the following March.

The plant, which is sub-evergreen, is best kept to a bushy dwarf habit by being pruned back in the early spring months, moderate growth being renewed within a warm greenhouse or forcing-pit. One-year old well established plants, pruned back in spring, yield a succession of vigorous branches; and it is not uncommon to find upon the most luxuriant of this summer growth, axillary corymbs of bloom extending for two feet or more along the branches, and the richly-coloured fruit that follows, renders the plant a beautiful object for conservatory decoration when grouped with other exotics. As a plant not requiring high temperature, it is well adapted for general decorative purposes, and small plants will be found extremely useful in portable flower or plant-baskets, for drawing-rooms and entrance-halls.

Cyclamen persicum, varieties.

1. *Persicum.*	6. *Rubrum.*
2. *Carminatum.*	7. *Marginatum.*
3. *Roseum.*	8. *Punctatum.*
4. *Atropurpureum.*	9. *Album.*
5. *Variegatum.*	10. *Delicatum.*

Mrs Withers delt. C.T. Rosenberg zinco.

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PLATE XXX.

CYCLAMEN PERSICUM.

OF the various descriptions of plants distinguished by a limited extent of growth, and adapted alike for decorating greenhouses or conservatories whether large or small, throughout the winter and spring months, the different species and varieties of *Cyclamen* rank amongst the most valuable. The genus consists of dwarf perennial hardy or half-hardy plants, having bulb-like tubers, with a growth of leaves and flowers arising from numerous incipient leaf-buds forming a crown on the upper surface of the tuber. They are exceedingly neat in habit, and the majority of them bloom in spring, but certain hardy species may be had in flower throughout the later summer and autumn months, so that, by a little management, some one or other of the *Cyclamens* may be had in flower from early autumn until late in spring.

Our Plate consists of representations of *C. persicum*, and its varieties. It will be seen that, while the species itself is unrivalled for purity and contrast of colour, several of the varieties are superior to it both in the large size and in the breadth of the segments of their flowers, irrespective of varieties in colour; these features are most decided in *carminatum*, *atropurpureum*, *marginatum*, and *punctatum*, while for their fine and distinct colours it will be seen that *rubrum*, *roseum*, *atropurpureum*, *carminatum*, and *marginatum*, are the most remarkable:—

Fig. 1. C. PERSICUM.—The ordinary form of the species, with white flowers, the segments long acute, blotched with crimson at the base, where they reflex.

Fig. 2. C. P. CARMINATUM.—Flowers rosy-carmine, blotched at the base with crimson; the segments broad and obtuse.

Fig. 3. C. P. ROSEUM.—Flowers large, deep marbled rose colour, with deep rich crimson stain at the base; the segments broad and obtuse.

Fig. 4. C. P. ATROPURPUREUM.—Flowers large, deep purple-rose, deeply stained with rich dark crimson at the base; the segments broad and acutish.

Fig. 5. C. P. VARIEGATUM.—Flowers white, spotted with crimson and shaded with blush, having a rich crimson basal stain, and broad obtuse segments.

Fig. 6. C. P. RUBRUM.—Flowers deep purple-rose, with a very rich crimson stain at the base; the segments long and acute, as in the type.

Fig. 7. C. P. MARGINATUM.—Flowers delicate blush, paler below, stained with crimson at the base; the segments very broad and obtuse.

Fig. 8. C. P. PUNCTATUM.—Flowers large, white, spotted with crimson, and blotched in the usual way at the base.

Fig. 9. C. P. ALBUM.—Flowers pure white, without spot or stain.

Fig. 10. C. P. DELICATUM.—Flowers large, white, bordered with pale rose around the base; the segments broad and obtuse.

Though the *Cyclamen* has, for a very considerable period, been known in British gardens, yet, judging from the special admiration now excited by the display of well-managed groups of them in mid-winter and spring, it may be inferred that they have not hitherto been generally appreciated in a manner commensurate with their intrinsic beauty and worth. This may, in part, be attributable to the little improvement which until recently has been effected among them, and the almost total absence of variety in the most valuable of the species, *C. persicum*, the original

form of which, though still remaining the most desirable for general purposes, is yet undoubtedly surpassed by several of the distinct and elegantly tinted varieties now illustrated.

This *Cyclamen persicum* is beyond question the most useful and ornamental species of the genus. Its singularly neat and restricted winter leaf-growth, never extending beyond the diameter of the pot in which the plant is growing; and its numerous flower-scapes, from six to nine inches in height, bearing curious as well as beautiful and fragrant flowers; its easy culture, adapting itself to the simplest rules of management, and requiring no extra attention beyond the ordinary care in watering: enduring the lowest degree of cold permitted in a well-ordered, thoroughly ventilated greenhouse or pit: continuing in bloom for a longer period than most other flowers, and throughout that period diffusing a grateful odour, whether placed within the drawing-room, or in the more open vestibule or conservatory,—all these features and qualities combine to render the Persian *Cyclamen* worthy of any attention that can be bestowed upon it.

The species of *Cyclamen* admit of being divided for cultural purposes into two sections, consisting respectively of greenhouse and hardy species. The former group is well represented by *C. persicum;* the latter by *C. coum.*

C. persicum produces in the autumn months a low tuft of neat, ovate, heart-shaped leaves, crenate at the margins, dark green, and picturesquely dappled and zoned with silvery-grey; as spring approaches, these are followed by a profusion of slender flower-scapes, six to nine inches in height, terminated by the nodding flowers, each consisting of a short tube, and an elegant coronet of five white, oblong-lanceolate acute segments, an inch or more in length, reflexed almost close to their base so as to stand erect. The flowers are in general richly blotched with purple-crimson at the base of the segments, just above where they reflex. The major part of the plants in this species, moreover, diffuse a rich and grateful odour, but, in consequence of many seminal varieties having been originated, the fragrant kinds are not always to be recognised before the flowering season.

The varieties of *C. persicum* bloom variously from December until May, and a sucessional bloom is obtained by starting the vigorous bulbs into growth a month or more earlier than the rest, and by retarding others in a cooler temperature in ventilated pits or houses during the mild autumn weather. By the latter end of April as the fading leaves appear to indicate a cessation of growth, water should be gradually withheld until the following autumn. While at rest, the tubers remaining among the soil in the pots should be placed either in a cool shady part of a constantly ventilated house, or in a pit, where they will be screened from all heavy rains, and no water should be allowed, but by occasional summer showers. The tubers will thus enjoy a few months rest until August or September, when they may be removed; and the balls of soil having been cleared of worms, they should be re-potted where required, or re-surfaced with fresh soil, and then slowly started into growth within a cool, well ventilated greenhouse or pit. At this stage, and until the root-growth is well established, they require water but once or twice each week. This species, in common with other greenhouse kinds, thrives well in good friable well pulverised loam and leaf-mould, in the proportions of three parts of the former to one of the latter. The tubers require to be planted with the crown of small incipient buds just exposed above the soil, and should not be placed so as to stand higher than the rim of the pot.

To obtain a succession of bloom, it is a very convenient plan to separate the plants into about three sets. It will be found that some will have a tendency to renew their growth after resting, earlier than others; these should of course be encouraged to grow on first, and the others in succession. When once they are so separated, the earlier blooming plants will usually be the first to have completed their growth, and be ready for the annual rest, and these would naturally be the first to be started the following season. Such a selection of plants is far better than promiscuous forcing, as the result desired is thus obtained with less artificial stimulus.

One of the principal precautions to ensure a free blooming habit in *Cyclamen persicum,* is to allow the tubers to become well established in the pots. Repeated annual potting is not requisite where the pots are at all com-

mensurate with the strength of the tubers. The operation of shifting to larger pots should be restricted to once in two or three years, a surfacing of rich fresh soil being a sufficient intermediate renewal.

C. africanum, known also in various collections by its synonyms, *macrophyllum*, *latifolium*, and *robustum*, is a large robust-growing species, requiring treatment similar to *C. persicum*. It has large dark green leaves, slightly zoned and dappled with yellowish grey, sometimes roundish-ovate in outline, crenated, sometimes more or less angulate. It has comparatively short flowers, with broad segments, and, as in *C. neapolitanum*, very conspicuously lunate-pentagonal at the wide-expanded mouth; they are of a pale-rose or pink, more deeply rose-coloured at the base. It is a plant of very distinct character, having somewhat the style of *C. persicum*, though not so prolific of bloom. Its botanical affinity, however, is with the autumn-blooming *C. neapolitanum*.

The second section consists of more hardy species and varieties, which are equally interesting with those of the former group, but are mostly of a more diminutive character. To this group belong the kinds mentioned below.

C. coum may be considered as the earliest-flowering of the tribe, on account of its blooming first in spring. It forms a dwarf neat patch, barely covering the surface of the soil, in early autumn, with its small decumbent-stalked, roundish heart-shaped entire leaves, dark green and unspotted above, and reddish purple beneath. Above these leaves in early spring, on stalks two or three inches long, appear a profusion of short, bright purplish-rose or reddish-purple scentless blossoms, richly blotched with violet-crimson at the base. This species varies with light pink or flesh-coloured flowers, the variety being equally profuse in bloom.

C. ibericum is a dwarf compact spring-flowering species, or variety, producing ovate-heart-shaped leaves, having a wide open sinus at the base, the margin nearly or quite entire, deep green above, with an irregularly heart-shaped zone or belt of pale greyish-green some distance within the margin, dull reddish-purple beneath, with green veins. The flowers are numerous, variable in colour: in some plants rich rosy crimson-purple, in some pale rose-colour, and in others white, but always marked with a purple or crimson blotch at the base; the mouth is pentangular, the sides concave in consequence of the segments being curved outwards at each margin, at this point. The white-flowered variety, *C. ibericum album*, is an elegant little plant, the richly crimson-coloured base of its white flowers forming a beautiful and lively contrast with the higher coloured purple kinds.

C. Atkinsii, a cross between *persicum* and *coum*, is an improvement upon *C. ibericum album*, being larger flowered; and being also a most profuse blooming plant, it forms a very elegant and picturesque object, and is a valuable accompaniment to the higher-coloured kinds. The leaves are rather large, ovate obtuse, cordate at the base with a deep sinus or partition there, the sides of which overlap each other; they are of a dark glossy green, livid or dull-purple beneath, and marked above with an irregular zone of pallid or greyish-green within the margin. The flowers are intermediate in size and form between the two parents, the petals broadly obovate nearly an inch long, blush-tinted white, marked with a deep crimson blotch at the base of each segment, the mouth of the tube being nearly circular, having indistinct angles. It is a spring bloomer.

The three last-named kinds, with their varieties, being perfectly hardy, admit of simpler treatment than that recommended for the tender sorts. They succeed equally well, however, in a similar compost of loam and leaf mould. In planting, the tubers should be covered with soil to the depth of half an inch, or more, and the pots may be plunged in an open cradle or hooped bed, which can be outwardly protected with garden mats, &c., from excessive rain or frost in winter. In this position they may remain from the potting period in August or September, until mid-winter or early spring; during this time they require to be cautiously watered, once or twice each week in warm weather in the early autumn being sufficient, or if they are exposed to occasional warm showers, further waterings may be dispensed with, until they are removed to the forcing-house or conservatory for bloom. They form very attractive features in decorating the marginal spaces of greenhouses, drawing-room vases, portable flower-baskets, and conservatory avenues during the mid-winter and early spring months.

C. vernum, in its true form, as figured long since by Sweet, has been aptly described as having the leaves of *persicum* and the flowers of *coum*. It seems very scarce. The tubers produce from the crown a short rugged stem or axis, from which the leaf-stalks and flower-stalks issue. The leaves are roundish ovate, cordate but overlapping at the base, crenulate at the margin, purple beneath, and dark green on the upper surface, marked with an irregular zone of a pale grey-green. The flowers are rosy-red, "darker near the mouth where there is a white circle, inside striped with red," their segments short, ovate or oblong. The flowers are nearly the same as in *C. coum*, but the plant is more robust. Sweet's plant, owing doubtless to peculiarities of treatment, flowered in spring, but under modern cultivation this kind blooms from November onwards till January.

C. littorale is a pretty dwarf hardy species, with small spherical tubers, and producing roundish-ovate cordate leaves, dark green along the basal part of the central ribs, forming a star-shaped figure, and spotted with dark green on a greyish-green ground at the margin, the same greyish-green colour extending inwards between the principal veins; the under surface being purple. Its flowers, produced along with the leaves, are rather longer than in *C. coum*, bright lively rose-colour, streaked with deeper rose at the broadish scarcely angular throat, but not blotched. It is a very neat and desirable late spring-flowering species, and not common. It is most nearly related to *C. europæum*, but seems distinct.

C. repandum, also known as *æstivum* and *hederæfolium*, is a late spring-flowering species. It has broad cordate angulately toothed leaves, purple beneath, dark green above, and marked with a zone of greenish-grey. The flowers are bright red, with long narrow segments. This species is somewhat tender, and liable to perish in winter, if not protected from wet and extreme cold; so that its treatment must be more assimilated to that recommended for the species of the first section.

C. europæum is a very desirable dwarf summer-flowering and highly fragrant species. The leaves are small, roundish heart-shaped, crenated or slightly toothed, dark green, and marked with an irregular greyish zone towards the margin, purple beneath. The flowers are of a pale rosy-lilac, deeper at the broad open pentagonal mouth, the segments oblong acute, about an inch long. This being a rather slow growing plant, it should not be often re-potted or otherwise disturbed, but allowed to accumulate vigour to favour a free production of bloom.

C. neapolitanum, frequently cultivated as *hederæfolium*, is a pretty autumn-flowering species, and the most robust and hardy of all the kinds. It has large angular-lobed ivy-like green leaves, prettily variegated with a silvery-grey zone on the upper side, and having an irregular broad band of white and purple beneath; and bears, before the leaves appear, numerous large rosy-pink scentless blossoms; these blossoms are pentagonal with lunate sides at the mouth. The variety of this species, *C. neapolitanum album*, is a valuable addition to autumnal flowering hardy perennials, its beautiful snow-white blossoms being conspicuous in September and October.

The hardier group of *Cyclamens* is extremely well adapted for pot-culture in frames. The plants may be grown in the same kind of soil as the more tender sorts, and may be treated in all respects similarly, except that they are more hardy and should have a greater degree of exposure to air. In fact, an airy pit or frame is the most suitable of all situations for them, for though probably hardy enough to grow in the open ground in sheltered situations, yet in the case at least of those which bloom early the flowers would be exposed to the risk of being destroyed by frosts; whilst if grown in protected pits, in which their pots should be plunged in some such porous material as coal ashes, they can be removed as required when in flower, and made available for decorative purposes. The summer and autumn flowering kinds are beautiful plants for select sheltered out-door beds or borders.

Cyclamens are freely raised from seeds, which should be sown before they become thoroughly ripe, as soon indeed, as the pulp of the fruit becomes soft to the touch; by sowing thus early a whole season is gained.

CAMELLIA TRICOLOR IMBRICATA PLENA.

Miss Sowerby delt. C.T.Rosenberg sculp.

Printed by [illegible] Chancery Lane, London

PLATE XXXI.

CAMELLIA TRICOLOR IMBRICATA PLENA.

THE extremely fine variety of *Camellia japonica* now represented will prove a valuable acquisition in the most select and limited collections of this noble flower. It was raised by the Signore Carlo Schmitz, of Florence, from seeds of the variety *tricolor;* and both the original plant and entire stock have passed into the hands of Messrs. E. G. Henderson & Son, by whom it is offered for sale. The variety is one of vigorous growth, robust and healthy, somewhat erect and freely-branched, the branches clothed with large elongated-oblong, acuminate, crenulated, deep green leaves. The flowers are freely formed at the ends of the branches, and are of medium size; their colour is a clear blush white, regularly flaked with rich rose and rosy carmine; the petals are stout in substance, nearly circular in outline, even-margined and rose-like, elegantly imbricated, and assuming the cupped form so desirable in flowers of this class. Those who possess the well-known variety named *tricolor*, will at once recognise in this, the rich combination of white rose and carmine tints peculiar to that variety, arranged here with a degree of constancy which renders the blossoms equal in their markings to the finest bizarre carnation.

The *Camellia* is so very generally admired and appreciated, that, with one exception, there is probably no other family of plants the beauty and merit of which it would seem to be more superfluous to extol; but the fact of its entire absence from various collections of ornamental plants, may justify us in offering a few remarks in reference to its adaptability for various decorative objects, as well as to the most suitable conditions for ensuring its bloom. In thus bringing practical observations prominently into view, and pointing out the common-place causes of success and failure, it is possible that some objections which are felt in reference to its culture may be removed, and obvious errors in its management beneficially corrected.

Whilst all lovers of flowers have admitted the faultless beauty and perfect outline of the *Camellia* when in bloom, it would appear that comparatively few appreciate thoroughly its merit as an evergreen shrub; yet who that ever entered a house devoted to its culture, and has seen the plant in its mature growth and in full health and vigour, has not been impressed with the conviction that no other evergreen shrub, hardy or exotic, can equal it in rich intense refreshing verdure?—and few indeed can vie with it in gorgeousness of bloom. It would be a reflection upon its intrinsic beauty and perfection of feature to compare its merits with those of any rival flower: no one can blame the Lily for not being a Rose, and no prepossession whatever in favour of other beautiful forms can lessen the imperial grandeur of the *Camellia*, when seen in its richest combinations of colour and variety. One of its highest points of value consists in its fitness for expanding its flowers throughout the gloomiest period of our winter months by the aid of gentle forcing.

The soil which has proved to be best adapted for the *Camellia* is formed of two parts well decomposed

chopped turfy loam, and one part of peat or turfy heath mould. With these should be well incorporated (1) a proportion of boiled crushed bones and of charcoal, to the extent of a fifth part of the whole, and (2) about a sixth part of the whole bulk of sand; but the sand must be regulated in quantity by the amount which is found in the constituent portions of loam or peat. A predominance of sand in either loam or peat implies sterility, and want of that essential firmness or body which is desirable in all good earths, and it is moreover indicative of a less amount of vegetable fibre than should be found in the composition of soils intended for permanent growth.

Assuming that the bloom is past, preparation should be made for obtaining a renewal of growth for bloom, previous to repotting. This should be effected by re-arranging the plants so as to admit of the freest possible exposure to light, removing all those of dissimilar growth not requiring a corresponding treatment; by giving at each alternate watering a supply of liquid manure, in the proportions of 1 to 3 of pure water; and by maintaining a genial and humid atmosphere of from 60° to 70° by day, and from 55° to 60° by night, ventilating partially in the morning, from seven o'clock until past mid-day, and again closing the house by two or three o'clock, unless the day is very bright. The fire is to be kept slowly on from early morning until about 10 a.m., and then removed until about 5 p.m., thence continued until 10 p.m., and then made up for the night, special attention being paid to maintaining a stimulating atmosphere for growth, by very free morning, afternoon, and evening syringings, and by damping all exposed surfaces throughout the house.

Where special instances of premature growth occur, the plants should, if possible, be accommodated in other houses with the requisite warm moist temperature and the accompanying treatment above recommended.

The best season for re-potting or shifting *Camellias*, when the production of flower-buds is considered of more importance than extensive growth, is immediately after the new growth has been completed, the requisite extent of which is well indicated by its changing to a brownish hue at the base. The pots or boxes should have free drainage by means of broken potsherds, covered with a thick layer of clean peat-siftings, or nodules, closely pressed down. In the process of potting, the root ball, after the removal of the loose pot-drainage, should rest upon the siftings, and should be filled round with the prepared compost, allowing due space above the ball when finished for sufficient water to be given to penetrate through the entire bulk of soil. A deficiency of space for the reception of the water necessary daily, has ruined thousands of plants, the lowermost fibres in the pots perishing from want.

After potting, the plants should still be retained in a warm but drier atmosphere. The day temperature may be maintained at from 60° to 70°, and the night at from 55° to 60°. A freer circulation of air is to be allowed, and the plants are to be shaded from intense sunlight for a few hours daily. At this period the principal object to be gained is the elaboration of the nutritive elements appropriated in the terminal leaf-buds, upon the due amount and concentration of which the formation of bloom-buds will depend. To effect this, a partial suspension of the root growth is required, and this is effected by withholding water from the soil each alternate day, for a week, substituting a very free syringing over the foliage, morning and afternoon. This treatment followed out for the above period, together with a well ventilated, dry, warm atmosphere during the day, and free exposure to light (intense sunlight excepted), will be found effectual in forming flower-buds. The alternate waterings of liquid manure may be continued until a full development of the buds has taken place.

On the formation of the twin bud at the extremity of each shoot, a cooler and less stimulating temperature should be provided. Fire heat may be dispensed with, unless a cold external atmosphere prevails, and an early and liberal circulation of air permitted, with sun heat, the house being closed early in the afternoon with a genial atmosphere. This may be continued for a fortnight, the plants having daily waterings, and alternate liquid manure waterings, as before. As the bloom-buds enlarge, the growth should be hardened by a partial admission of air during the night.

Where houses are entirely devoted to the culture of *Camellias*, some skilful growers never expose the plants in the open air, but, by means of a thorough system of ventilation in all calm weather, by day and night, retain them,

with a cool moist atmosphere in sultry weather, safely under glass shelter, until the season of bloom. Where this treatment cannot be adopted, the plants should be prepared by an increased admission of air for a few days or a week, if calm weather, and should then be removed to a partially shaded north-east border, or any position screened from the mid-day and afternoon sun. Under less favourable conditions a temporary top-screen is of great service, as a preservative from intense sunlight, or excessive wet from thunder showers. After some weeks' exposure, and on the approach of cooler weather, the plants will require removal to the house for protection against cold autumn rains; and, if the flower-buds are not in a forward condition, they will here require the free admission of air by day to check premature expansion, and a cool moist atmosphere must be maintained in favourable warm weather, the house being closed early, after partial ventilation when the atmosphere is cold, dry, and parching. A well-regulated and early daily system of ventilation in all plant houses, admits of comparatively early closing, with the genial influence of sunlight upon them.

To meet some of the cases of contingent difficulties and unfavourable results which arise from limited convenience and means to manage the *Camellia*, in connection with plants of dissimilar habit, it may be observed that, as a general rule, whether retained in the house or arranged in the open air for a resting period, they succeed best, if after the bloom-buds are formed and developed to a good size, that is from the early summer months to the blooming period, they are maintained at a nearly uniform temperature, and in a genial atmosphere. It is quite certain that a long-continued cold and stagnant atmosphere, which to a similar degree might not injuriously affect healthy plants *without bloom-buds*, is unfavourable to the retention of the flower-buds upon the plant; therefore, where bloom-bearing plants can be separately accommodated, it is assumed that a temperature of 45° to 55° must be considered the lowest average scale of safety. The younger the flower-buds, the greater the amount of vital force they possess to resist cold, and *vice versâ*, other conditions of health being equal. The frequent disappointment arising from the fall of the flower-buds has been attributed to two causes:—(1) the excessive number of buds allowed to remain upon the plant; and (2) exposure to alternations of drought and moisture, especially at the root. The last is no doubt the principal cause of the evil, and is in many cases aggravated by the soil being suffered to remain all night unwatered.

When the growth has been too much stimulated, either during the winter or spring treatment, by an undue continuance of the warm temperature, the buds become too far developed to be healthily retained upon the plant for the ensuing winter or spring bloom, and are unable to withstand a protracted exposure to low temperature. Where such results are anticipated, the plants should be placed in a house kept at from 55° to 65°, a genial moisture being maintained around them by syringing; and then, after their blooming period, they should be removed to a lower temperature, to await the treatment recommended for growth.

It will be inferred from the foregoing remarks, that *Camellias* are most successfully dealt with, when either grown separately or grouped with plants of similar habit, requiring slow and uniform evaporation, and a tolerably equable temperature during the summer, autumn, and winter periods. Under favourable conditions of growth, few plants are so easily and economically managed, from the fact, that where the growth is not stimulated too early in winter, to require an early bloom in the ensuing season, scarcely any other class of plants will endure a lower average temperature, if cautiously watered during the prevalence of severe frost. Water, at this season, should always be applied in the morning, and when required should be given freely, rather than partially and more often. A parched state of either the soil or the atmosphere will produce the most injurious effects upon the growth and bloom. Whatever diminishes the healthy circulation of moisture in the foliage, such as the absence of uniform moisture in the soil, weakens in a corresponding degree the power of attachment in the blossom-buds; and the repeated omission of a due supply of water at the root, apart from any consideration of well-regulated temperature, will ultimately cause them to fall. Plants whose determinate growth ceases for a given period, and whose leaf-organs are able to secrete but a small uniform amount of water during such periods, are best when placed upon cool, close surfaces, as a simple protection from dry and parching influences upon the roots. Hence the importance of avoiding elevated trellised

stages or platforms for such plants. When they are unavoidably mixed with plants of dissimilar growth, requiring a freer admission of air, and closer proximity to the glass, the lowest elevations should be preferred, if admitting a good exposure to light, without exposure to contiguous currents of air. Many fine collections of *Camellias* are judiciously placed upon a partially elevated ground surface of gravel, or clean cinder ashes, and this being well damped, the roots are not only effectually preserved from under currents of air, but also maintained in a more uniform state of moisture, in consequence of the evaporation of water from the soil being retarded. It is only during the period of their growth, and especially during the formation of the flower-buds, that the more direct influence of light is desirable, and for this purpose temporary elevations are easily formed for the smaller sized plants. When, however, the growth of *Camellias* is obtained in houses of span-roof structure, where light is more equally diffused, such elevation is proportionately less needful.

In cases of lost health or vigour, an extra amount of stimulus is requisite for its restoration. The degree of health and vitality in *Camellias,* as in many other plants, is indicated by the presence of lively green buds in the axils of the leaves, and the absence of these invariably implies a defective state of the roots, upon the vigour and health of which the leaf-buds depend. When the incipient leaf-buds are thus dormant, the plants should be carefully re-shifted to other pots, the size of which should be strictly commensurate with the amount of sound roots, the root-ball in each case being proportionately reduced. The close, adhesive, or sterile soil is to be replaced with the porous, friable, turfy compost previously described, a clear substratum of drainage being used, and a fraction more of sharp sand added throughout. When thus potted, they should be placed for a week or two within a house or pit, upon the surface of a brisk warm tan-bed, at a temperature of from 60° to 75°, a moist atmosphere being kept up by day, until a vigorous start in growth is made. The soil should only be watered each alternate day, substituting vigorous syringings between, until the languid circulation is quickened, and a healthy reciprocal root action produced. In the second or third week from potting, as the leaf-buds show progressive vigour, the pots may be plunged to half their depth to encourage continued root growth, and when this is obtained to the average extent, the pots may again be restored to the surface, and the plants gradually hardened to bear the conditions of a cool moist well ventilated greenhouse, where they must be shaded from intense sunlight. The occasionally spotted appearance and somewhat unhealthy aspect which is observed in plants otherwise vigorous, is attributable to the effect of a cold soil, either arising from its constituent qualities, or from a defective circulation of moisture; this produces an impeded action between the roots and leaf-secretions, which manifests itself by a discoloured tissue. To remove this, the more generous treatment already explained, is recommended.

The principal plants which associate well with *Camellias,* and require a corresponding temperature for their spring-growth, are the Indian Azalea and the Orange, whilst other hard wooded or ligneous shrubs requiring a warmer atmosphere for renewed vigour after the winter and spring resting periods, may be selected from the following genera: *Gardenia, Luculia, Boronia, Crowea, Jasminum, Enkianthus, Franciscea, Meyenia, &c. &c.*

The most valuable evidence in favour of uniform moisture in the soil is drawn from the fact that the flower-buds are much more easily retained on plants of *Camellias* cultivated in conservatory borders, than on those grown in pots: no doubt in consequence of the more equalised degree of temperature and moisture to which the roots are subjected. It is assumed as a universal principle of vegetable physiology, that all success attending the growth and flowering of plants, whether in pots or borders, is involved in the practical recognition, application, and adaptation of those separate conditions and agencies which, each in their relative degree, are subservient only to the production of leaves or flowers.

1. SALVIA TRICOLOR.

2. PETUNIA. MADAME HENRY JACOTOT.

Miss Sowerby del.t C.T.Rosenberg zinco.

ILLUSTRATED BOUQUET.

Printed by C. F. Cheffins & Sons, London.

PLATE XXXII.

SALVIA TRICOLOR.

(Fig. 1.)

FEW genera of plants have yielded so largely as the *Salvia*, to the decoration of the greenhouse and conservatory through the summer, autumn, and winter months; and few can compare with it as regards the facility with which it may be cultivated in ordinary soils, if enriched with leaf-mould, or pulverised manure. The plants may readily be made to combine large size with a densely branched habit of growth, by means of the usual method of pinching off the extremities of the shoots at stated periods. The stronger-growing species are indeed particularly well adapted for the formation of large and ornamental specimens within a comparatively short period; this being effected simply by planting them in the open borders for the summer season, and re-potting them in rotation in the later months for successional bloom. On account of their brilliant flowers, produced in long-continued succession, and of the brightest tints of scarlet, crimson, and blue, they are more or less indispensable in extensive establishments, where the decoration of pleasure-grounds and of plant-houses is carried out on a large scale; and they are also valuable for yielding a supply of cut flowers for vases and bouquets.

The plant which forms the subject of the present illustration is a native of Mexico. It forms a neat dwarf shrub, of densely branched habit, with a pleasant, aromatic odour, the branches bearing small, bluntish-ovate, smooth leaves, and numerous terminal racemes of two-lipped flowers, similar in size and form to those of *S. chamædryoides*, but instead of being of a blue colour, as in that plant, they are pure white, with a bright carmine-scarlet blotch or tip on the lower lip, whilst the extremity of the upper narrow helmet-like lobe is tipped with violet-crimson; in many instances the beauty of the flowers is still further enhanced by the violet tint on the upper lobe, extending throughout its whole length, as well as colouring the under surface of the flower-tube.

The plant forms a very neat and picturesque object for pot-culture in the conservatory and greenhouse, blooming during the spring and early summer months; after which its growth and bloom may be extended by planting it in a bed or border of peat-earth, from which position it should be again re-potted in the autumn, and kept with other greenhouse species.

We may take this opportunity to notice the following additional species of *Salvia*, which are amongst the most valuable of the larger growing kinds:—

S. splendens. This favourite and magnificent old species probably remains unequalled for decoration during its winter-blooming season; and though requiring a higher and more genial temperature than many other allied kinds, to secure the development of its flowers, it readily yields to the ordinary means already referred to for obtaining large and well-formed plants. Under good culture it forms a neat smooth-stemmed shrub, from two to four or more feet in height, with smooth, somewhat glossy stalked ovate pointed leaves; and during the late summer and autumn months it appears conspicuously beautiful above most other plants, in consequence of the numerous long flower-spikes from one to one and

a-half foot in length, which terminate its branches, and are loaded with brilliant scarlet tubular labiate flowers, issuing from pointed-lobed calyces or flower-cups of the same attractive colour, these calyces remaining after the fall of the corolla to ornament the plant.

S. gesneriflora. This is an ornamental robust-habited, free-branching shrub, growing from three to five feet in height, having rich green rugose-surfaced ovately heart-shaped leaves, prominently nerved on the under side, and bearing numerous terminal racemes of rich crimson-scarlet flower tubes, during the winter and early spring months. Fine specimen plants may be obtained by planting out healthy young plants early in summer in a rich garden border, re-potting them again in September and October. Such plants are admirably adapted for conservatory decoration, yielding a long-continued display of bloom.

S. patens. A highly ornamental summer-flowering plant of vigorous habit, growing from two to four feet in height, and adapted for open ground embellishment, or conservatory decoration. It is readily distinguished by its firm ovate-deltoid, halberd-shaped, rugose or wrinkled leaves, obscurely surfaced with short soft hairs, and also by its numerous terminal spikes of brilliant blue broad-lipped flowers. When grown in good firm-bodied rich turfy loam it forms a fine object for pot culture as a portable specimen; and by skilful management in obtaining a branched style of growth from the base, it is adapted for large groups in extensive pleasure grounds.

The white-flowered variety of this species, *S. patens alba*, is a neat and elegant, but more slender plant, suitable for smaller pot or ground culture, producing its bloom throughout the summer months.

S. fulgens. This species forms a free vigorous shrub of densely branched habit, growing under liberal management from two to four or more feet in height, having rich green ovately cordate leaves, and bearing throughout the autumn and winter, numerous terminal racemes of rich crimson villose flower tubes. By adopting a similar treatment to that recommended for *S. gesneriflora*, planting out the specimens intended for conservatory decoration until autumn, and carefully removing them into large pots or boxes about September or October, they will be obtained well furnished with bloom buds equal to a long-continued supply of flowers. Where it is inconvenient to have them planted out, this species, like the preceding, is equally adapted for pot-culture, but it requires liberal treatment is respect to root-room, and should neither be restricted to small pots, nor allowed to suffer from any omission of daily summer waterings.

PETUNIA, MADAME HENRY JACOTOT.

(Fig. 2.)

Amongst the *Petunias* recently introduced to cultivation is a class originally obtained from the Continent, the flowers of which may be termed limbate, or margined. That now represented is one of them. It is a singularly novel and beautiful variety, of an ornamental character, the flowers being of a rich light purple ground colour, uniformly margined or belted with white, and having a broad obovate-wedge-shaped blotch of white in the centre of each segment. Sometimes the central blotch is cut off by an even belt of the ground colour extending around it, and intervening between it and the white border, but the features of the belted *Petunias* vary considerably according to differences of culture and of the season of bloom, so that in some flowers the white of the blotch, though contracted, breaks through the purple, and becomes united with that of the border, though in others, as already mentioned, the violet belt is entire or unbroken, as represented in one of the flowers which have been figured. In some flowers, consequently, the dark ground colour quite encloses the inner space of white, restricting it to a smaller compass, whilst in others, the higher colour is confined to radial bands or flakes dilated at the extremity, but separating to allow the white centre in each lobe to extend outwardly.

These varieties of *Petunia* having picturesque combinations of colour are found to be most valuable for pot-culture in the early spring and summer months, being at that season more permanent in character than later in the year; and when they are thus characteristic they are valuable plants for conservatory decoration.

DIANTHUS HEDDEWIGII.

Mrs Withers delt C.T. Rosenberg zinco.

Printed by C.F. Cheffins & Sons, London.

PLATE XXXIII.

DIANTHUS SINENSIS, VAR. HEDDEWIGII.

THERE is, perhaps, no genus of cultivated plants to which the lover of flowers can turn with so grateful a remembrance of its attractiveness and delightful odour, permanent alike by day and night, as to that which is named at the head of this article, many of the species and varieties of which are well-known and popular favourites.

It is a curious fact, but one which we suppose may have been generally observed, that, with few exceptions, the odoriferous element is least developed in those flowers which are most distinguished by beautiful forms and colours; and though there are rare exceptions to this, in the group we have now more directly before us, we must nevertheless include the present species among those whose extraordinary beauty must be held to be amply sufficient to atone for the defect which is involved in the absence of fragrance. While admitting this defect, we are not, indeed, without hope that ere long, by the aid of hybridisation, this most desirable quality may be added to the many other attractions of *Dianthus Heddewigii.*

This *Dianthus Heddewigii*, a variety of the well-known *Dianthus sinensis*, or Indian Pink, is a native of Japan. The introduction of it to European gardens is due to Mr. Heddewig, an enterprising nurseryman of St. Petersburg, whose wish to see so fine a plant extensively circulated, induced him to offer it for sale to well-known English nurserymen, amongst whom Messrs. E. G. Henderson and Son were successful in rearing the first group for exhibition. The plants appeared at the Royal Botanic Society's Flower Show in the Regent's Park, in July, 1859, on which occasion they formed one of the principal attractions amongst novelties, and obtained a medal in testimony of their distinguished merit. A certificate of high commendation was also awarded to plants of the same group by the Floral Committee of the London Horticultural Society. The uniform admiration which the plants elicited on these occasions, afforded ample proof of their great value for decorative purposes, adapted, moreover, as they are, for the greenhouse and conservatory in the early summer months, and also for grouping in the flower-garden at a later period of the summer and autumn.

In its growth, *Dianthus Heddewigii* forms a neat, compact, half-shrubby biennial or perennial plant, growing from twelve to sixteen inches in height, and by good cultivation branching freely from the base. In its younger stages, the majority of the plants are surfaced with a glaucous bloom, which in more advanced growth partially disappears. In some specimens the stems are of an uniform purple tint, whilst in others they are simply green, but in both cases they are covered by the same glaucous bloom. The leaves are linear-oblong, bluntly pointed, with an obscurely hirsute surface, and minutely asperated margins. The numerous flowers are terminal, borne singly on the branches of the stem, and they issue from close cylindrical reddish-tinted flower-cups having acute segments, each cup or calyx being surrounded at the base by an involucre of narrow green diverging leaflets. The blossoms are single, from two to three inches in diameter, close, compact, five-petaled, and salver-like, with fringed margins.

DIANTHUS SINENSIS, VAR. HEDDEWIGII.

The predominant colour is crimson, varying in the richest conceivable shades and varieties, some plants producing self-coloured, others parti-coloured flowers, the former vieing with the finest dark velvet and damask tints, and these hues gradually blending in others with rich carmine and violet-crimson. The centre of each flower is also picturesquely marked with a broad radiating dark zone or ring, the rich velvety colours of which are exquisitely relieved by the central silvery-gray anthers.

The parti-coloured blossoms sometimes show broad rich dark crimson centres, each an inch or more in diameter, this colour thence radiating towards a broad marginal belt of carmine, rose-stained or mottled with violet. In other parti-coloured varieties, the rich bright inner belt is contrasted with a clear rosy-pink outer border, this being feathered with crimson. The lightest shades are distinguished by a violet-purple-stained centre, surrounded with a clear outer creamy-white border, mottled or dashed with violet.

In culture, like other free-growing plants of short duration, this plant will thrive luxuriantly in any rich garden soil, or in a compost of friable turfy-loam and leaf-mould, with the usual admixture of sand.

Seeds sown in autumn or early in spring, will produce full-sized plants for blooming in the ensuing summer; or, if carried forward by pot culture in a warm greenhouse until April, and then strengthened by intermediate exposure in a pit or frame, they will form beautiful specimens for indoors decoration during June and July.

The early summer-sown seed will furnish a supply of seedlings to be potted and preserved through winter in store pits, but the autumn-sown plants should remain unmoved until early spring, in a situation where they will be well-exposed to light, and within the influence of a genial temperature.

The facility with which any individual variety may be propagated, will admit of the most brilliant kinds being multiplied for planting in large groups and masses. Those plants whose growth has been partially exhausted by blooming early in the season, should be pruned back to one-third of their size, and, by diminishing the amount of water in proportion to their reduced condition, until the incipient buds have burst forth in renewed growth, their vigour will re-accumulate, and they will form suitable plants for the flower-garden in the ensuing season.

Like many other allied plants, therefore, this *Dianthus Heddewigii*, though naturally of short-lived or biennial duration, may, nevertheless, be perpetuated by cuttings, and even excited to renewed growth after flowering, if not allowed to the full to indulge in the exhaustive process of flowering and seeding freely, nor suffered in the first instance to lower its vital energies too much by being permitted to grow in exhausted soil.

BIGNONIA CHAMBERLAYNII.

Miss Sowerby del.t C.T. Rosenberg zincog.

ILLUSTRATED BOUQUET.

C.F. Cheffins & Sons, London

PLATE XXXIV.

BIGNONIA CHAMBERLAYNII.

THE Trumpet-flowers, called *Bignonia* by botanists, form one of the most extensive and ornamental families known among exotic climbing shrubs. The greater number of the species are from tropical regions, and therefore require considerable space for root-growth, and a warm or stove temperature for the development of their somewhat rambling stems, and the maturation of their flowers. There are, however, species of a very ornamental character, forming exceptions to these conditions, in being adapted to a lower or temperate climate.

Bignonia Chamberlaynii, which forms the subject of the present illustration, is one of the finest of the yellow-flowered species. It is of moderate growth, the branches extending from 10 to 15 feet, at which length they show a tendency to bloom freely, proving its adaptability for cultivation in hothouses of ordinary dimensions; it forms, indeed, one of the best summer-flowering stove climbers in its section. The plant is distinguished by a neat thinly-branched habit. Its leaves are dark green, glossy-surfaced, obscurely-nerved, with ovate pointed leaflets, which are generally produced in pairs, and in this state the rib of each leaf terminates in a strong tendril; when in a more luxuriant state of growth, the leaflets are borne in threes, the tendril disappearing and becoming replaced by the higher development of a terminal leaflet; the leaflets moreover are unequal-sided at the base, being narrower on the side nearest to the rib or rachis. The blossoms are produced in axillary drooping racemes, and are large and trumpet-shaped, three inches in length; the long narrowish tube, which is of a rich golden yellow, especially in the inside, and corrugated or channelled on the lower side, becomes expanded at the mouth into a five-lobed bright sulphur-coloured limb or border, three to four inches in circumference.

This species is well adapted for planting out in a border, or pit at the side or end angles of a plant stove, where its branches might be trained horizontally near the glass. Its drooping panicle-like racemes of flowers are very beautiful and effective.

The following kinds of *Bignonia* are also specially deserving of cultivation :—

B. venusta. This is one of the most splendid hothouse species in this noble genus, and amongst the most extensive in its range of growth, single plants being known to cover a space of from 200 to 500 superficial feet. It is, however, entirely free from the gross and rampant vigour common to many large climbers. In its mature growth it is distinguished by its long, slender, darkish grey or brown pliant stems, strikingly adapted for attaining a lofty elevation, or covering an ample surface. Its leaves are ternate or having the leaflets in threes, on the lower parts, and binate or in pairs on the upper or terminal part of the branches; the leaflets being of medium size, thin, smooth, acuminately-ovate, rich green, attached by obscurely villose grooved petioles, or foot-stalks. The flowers are produced during the late autumn and winter months, at the termination of the axillary growth, in numerous clustered corymbs; they are of a rich vermilion-orange colour, and trumpet-shaped in outline.

B. picta, which is also known as *B. speciosa*, is a very neat species of moderate vigour and extent of growth, having smooth round slender stems, with darkish green obovate oblong glossy-surfaced leaves, and numerous funnel-shaped blossoms, two inches in diameter, of a pleasing violet shade upon an interior white ground, and marked with rich purple lines on the lower border or limb.

B. (*Tecoma*) *jasminoides rosea.*—The type of this species forms a handsome evergreen climber for the greenhouse and conservatory. It has bright green pinnate leaves, with ovate leaflets, and produces terminal racemes of large tubular funnel-shaped blossoms, each nearly two inches in diameter; white, with a rosy-red throat. The variety, *rosea*, is superior to its prototype in being a more prolific bloomer, with a richer coloured centre to the flowers.

B. (*Tecoma*) *grandiflora.* A highly ornamental, deciduous, cool greenhouse shrub, of sub-climbing habit, requiring a free space for vigorous root-growth, under which conditions it will attain an elevation of from ten to twelve or fifteen feet; but where restricted at the roots it will blossom at a much smaller size, if well supplied with moisture in the early summer months. It is robust, but sparingly branched in habit, and in its season of growth bears elegantly winged or pinnate leaves from eight to twelve inches in length. The flower panicles are terminal wide-branching, one to two feet in diameter, bearing large broad-limbed trumpet or funnel-shaped blossoms, which are three to four inches in width, and of a bright reddish orange.

B. (*Tecoma*) *radicans major.* This is a variety of the fine North American hardy climbing species *B. radicans.* Its style much resembles that of *B. grandiflora,* forming a handsome summer flowering, deciduous, hardy shrub, from six to ten or more feet in height, with ample elegantly-winged ash-like leaves, and large terminal wide-panicled racemes of rich orange-coloured trumpet-shaped flowers, with a red limb or border.

B. (*Tecoma*) *radicans atropurpurea.* This is one of the best varieties, allied in habit of growth and bloom to the preceding, and having equally elegant winged leaves, and conspicuous flowers of an orange-red colour, tinged with violet purple.

From its almost unequalled vigour of growth, *Bignonia venusta* is only adapted for situations where its branches can be trained to the average extent of its growth, near the glass, in order to mature its buds. It is admirably adapted for planting in an apportioned space at the angle or side enclosure of a pinery or hothouse-pit, where its roots and fibrous rootlets can not only have space for pasturage, but may derive an extra stimulus from the genial temperature supplied to them throughout the growing season, by the tan, or fermenting material. When planted in such situations, it should be allowed the entire depth of the pit, a temporary division of two to four feet square being formed with perforated boards or slabs, to admit the egress of the roots into the tan bed. In the arrangement of the soil, free bottom drainage must be provided, over which should be laid a foot thick of rough turfy peat, the rest of the space being filled to the required level with a mixture of equal parts of turfy heath mould and loam, thoroughly incorporated with rough charcoal and river sand to the extent of one-sixth of the whole amount. The soil should be allowed to settle previous to planting, in order that the base of the stem may be kept near the surface.

There are differences of opinion existing as to the proper mode of treatment for this plant, arising from different views of the importance of warmth at the root. Some cultivators allege that this is of little consequence; whilst, in favour of the opposite opinion, it is affirmed that the principal examples of successful growth have been produced by means of the stimulus arising from the contiguity of the roots with a body of warm tan, its influence being manifest for a series of years in an abundant and annual display of bloom. Though these well-authenticated instances confirm the importance of maintaining a correlative temperature between the roots and the branches, which condition may, to a given extent, be considered essential where the highest effects of culture are sought, they do not by any means invalidate the independent evidence of the constitutional adaptation of the present species to bear a lower degree of root temperature, under which, all other points of management being equal, a mature extent of growth will produce an average amount of bloom. That such is the fact may be testified by personal observation, in the case of specimens judiciously planted within the ordinary enclosures of hothouse borders, apart from artificial bottom heat. The different influences of these opposite conditions may be stated thus:—root warmth is favourable to a more rapid growth, and a consequent earlier fertility, whilst the same extent of growth obtained with a lower ground-temperature will be longer in arriving at a blooming state. After the blooming period in winter or early spring, water must be withheld from the roots in a graduated manner to bring on slowly a perfect state of rest from growth; the plant will thus become deciduous. About March or April the branches must be pruned back to three, five, or seven feet in length from the root stock, the former length being most proper in young plants, and the latter in strong mature specimens. About the first week in April the plant is to be again started into growth, and as the growth advances, the principal shoots or stems are to be trained erect towards the roof lights; afterwards, as it progresses, a number of branches, sufficient to fill out the space, must be selected for training upon the horizontal trellis or wires, allowing ample range for the terminal growth of the laterals, which must be kept thinly arranged to admit of full exposure to light until the racemes of bloom are formed. The plant should be freely syringed while the growth is progressing, but this must be discontinued from the time the colour of the flower-tubes becomes manifest.

For the culture of the other species described above, the reader is referred to Plate XXXVI.

Mrs Withers, Delt.

PŒONIA. (MOUTAN) ELIZABETH CASORETTI.

Printed by C. Chabot.

PLATE XXXV.

PÆONIA MOUTAN: ELIZABETH.

THERE are few of the plants introduced to English gardens which in their day excited such high anticipations of their importance in an ornamental point of view, as the Chinese Tree Pæonies; and fewer still have so thoroughly realised the anticipations formed respecting them. This may be said truly even of the original kinds introduced from the Celestial Empire; but these parent forms are now far surpassed by the improved varieties which have been obtained from them, which excel in their free and luxuriant growth, and in the colossal size of their flowers which are of exquisite beauty, so that they take rank amongst the most magnificent of flowering shrubs which adorn the garden in the early spring months.

The introduction of the original species, *Pæonia Moutan*, appears from the best authorities to have taken place in 1789, and its reputed varieties were imported at successive periods up to 1802. The Moutans, or Tree Pæonies, form, as is generally known, robust open-branched early spring-flowering shrubs, varying from two to four or five feet in height, with greyish rugged stems, and very prominent, scattered leaf-buds, from which issue the ample spreading, unequally twice ternate or three-parted leaves, rapidly succeeded by the large round flower-buds, which expand with the genial sunbeams of spring into blossoms of extraordinary size, brilliancy, and beauty.

The variety which forms the subject of the present plate, *Pæonia Moutan: Elizabeth* (Casoretti) is one of the finest yet introduced to British collections, and presents a correct illustration of the gorgeous and effective beauty of the race to which it belongs. Its large double blossoms are from nine to twelve inches in diameter, and have a rich violet-crimson centre, this colour shading off to a light blush-rose tint towards the margin: at the outside is a triple row of guard petals, which are rose-like even and entire, whilst the inner multiplicate series of smaller ones are partially incurved. In its habit of growth this variety possesses the average character of the shrubby or tree varieties.

The Chinese and Japanese authors refer to a much greater number of varieties than appear to have made their way to Europe, from which it may be inferred that the best kinds to be had from this source have been already received. The original species, and its native varieties, seem to have been regarded by the Chinese with almost superstitious veneration, and even as objects of trade bore an extraordinary commercial value; in this respect holding the same position amongst the pæony cultivators in China, that the tulip formerly held in Holland. They were not only often held far above the ordinary rates of barter or purchase, but were actually looked upon as heir-looms, or sold at incredibly extravagant prices, or classed with the most costly gifts; and not seldom were young plants of some highly prized ancestral variety of the Tree Pæony offered as a constituent portion of the marriage dowry! Chinese books record various arts resorted to by native cultivators to obtain yellow and blue-flowered varieties. The statements which are made appear wholly incredible and scarcely worthy of notice, such as sprinkling the roots with a mixture of ink and water to obtain blue

flowers, and manuring the plants with native nuts to produce parti-coloured petals. The roots of some kinds, both shrubby and herbaceous, are, in their native country used in medicinal preparations.

The following are the original or parental forms of Tree Pæony:—

P. Moutan. This, as the first species introduced from China in 1789, is that which has formed the most general feature of ornament in English gardens, where it obtains from three to five feet in height, and is distinguished as a stout branched shrub, with broad expanded leaves, divided in threes, which are at first of a glaucous grey tint, afterwards of a deeper green; by the time these reach maturity the large open semi-double salver-like blossoms are unfolded: these are of a blush lilac, with violet purple centre, and are individually eight to ten inches in width, having large outer or marginal guard petals (similar to those of the double Anemone or Hollyhock), encircling numerous smaller inner ones. Plants of this species are occasionally met with of a large size, from ten to fifteen feet in circumference; and such examples present a splendid appearance in the early spring months.

P. Moutan Banksii. This variety appears to have been introduced to the Kew Botanic Garden about the same period as *P. Moutan* itself. It is of similar habit, with equally large oblong-ovate obscurely-villose leaf lobes, of a sea-green or glaucous hue, but variable in its flowers as imported. In one variety these are very double, blush-white, with a purplish crimson centre; and in the other they are of a beautiful rich rosy tint on a lilac ground, the large outer guard petals being elegantly marked with translucent lines on their surface.

P. Moutan rosea plena. A handsome variety, assimilating in habit to the previous kinds, with large conspicuous terminal blossoms, which in their true type are of a richly shaded pink colour, and yielding an agreeable odours

P. Moutan papaveracea. This is undoubtedly one of the most remarkable native forms. It was imported from China for Sir Abram Hume, at Wormleybury, about the year 1789, but according to others, in 1802. In its younger growth it does not materially differ from the preceding kinds, but in its mature state it is readily distinguished from *P. M. rosea plena* and *P. M. Banksii* by its red tinged flower-stalks and broader leaf-lobes. Its blossoms are truly splendid, and in their dimensions probably surpass all others in cultivation, forming wonderfully large single petaled blush-white salver or dish-shaped flowers from nine to twelve or more inches in diameter, having a very broad rich violet-crimson blotch at the base of each petal. The flowering plant may at first sight be readily compared to a gigantic tree-Poppy, with immense silvery-hued flower-lobes, whilst the seed-vessels, with their membranaceou. integument, or cover, bear a striking resemblance to the large capsules of the *Papaver somniferum.* The original plant at Wormleybury, which for a considerable period was permanently protected as a half-hardy or cool greenhouse shrub, attained to a circumference of forty feet, and when at its highest state of vigour, matured at one period six hundred and sixty flowers! Though much more distinct when in bloom from the reputed original species, *P. Moutan,* than any of the kinds now described, it is nevertheless only a variety of that plant. It has, indeed, been suggested, on account of its distinct features when in bloom, that it, rather than *P. Moutan,* may be the species from which all the semi-double varieties have been raised; and this is not improbable.

The above kinds of Tree Pæonies have been thus noticed as a record for amateur cultivators, showing the leading types from which nearly all the kinds at present in cultivation have been derived, and not on account of their present value, since amongst the varieties which have been produced within the last few years are many of far greater merit and beauty, of which it is intended to offer a descriptive list on a future occasion.

The suffruticose or shrubby Pæonies are well adapted for decorative effect upon lawns, flower-gardens, &c., where the partial back screen of a plantation of shrubs will secure their early-developed leaf buds from the effects of storms and severe winds. They thrive in all ordinary rich garden soils, exclusive of peat, unless found upon a deep dry sub-stratum. Being amongst the earliest of spring-flowering shrubs, they occasionally require a slight cover or protection in the spring, to preserve the bloom-buds from late frosts. The double-flowered varieties remain the longest in bloom, though some of the semi-double ones are exceedingly beautiful, the full expansion of their large outer guard petals affording a full display of the rich violet-crimson or rosy purple centres.

Miss Sowerby, Delt. DIANTHUS VERSCHAFFELTII. Printed by C. Chabot.

ILLUSTRATED BOUQUET.

PLATE XXXVI.

DIANTHUS VERSCHAFFELTII.

VERSCHAFFELT'S HYBRID PINK, of which the accompanying drawing is a faithful illustration, is a remarkably interesting and beautiful addition to a family already embracing some of the choicest among garden favourites. It is a reputed variety between *Dianthus Maulei* and *D. arboreus*, and was originated by M. H. Hirschbach, nurseryman, at Cologne, Prussia; the entire stock was purchased by M. Ambroise Verschaffelt, nurseryman, Ghent, and by him transferred to Messrs. E. G. Henderson & Son, St. John's Wood, London. It possesses an exceedingly neat suffruticose or shrubby branching habit of growth, dwarf and compact, nine to twelve inches in height, furnished with rather short densely decussate leaves of a darkish green hue, and broadly linear outline. The flowers in their general aspect resemble a large specimen of the white garden or Florist's Pink, but with single rather than multiplicate petals, each measuring from two and a half to three inches in diameter; the flower-lobes or petals, however, instead of all combining to form a single blossom with the usual dark centre, as is the case in the varieties above spoken of, range themselves in a series of distinct circles, which together form the large aggregate cluster, or flower head. The petals, through the entire series, are each marked at the base of the limb with a rich crimson blotch, and these blotches in each circle of petals converge into a distinct zone or belt, as shown in the figure, a feature which is quite peculiar to this handsome variety.

This choice hybrid production will prove a highly attractive feature for the greenhouse in the spring months, its snow-white ground-colour forming a desirable contrast to the more florid hues of *D. Heddewigii* and *D. laciniatus*. From the very free and healthy style of growth indicated by plants of flowering size, the adaptation of this variety to cultivation in pots, as well as in flower-garden borders, may be inferred. After its blooming season in the spring or early summer months, the flower-stems should be cut back, and the plants should be planted out in rich soil in the open ground to accumulate vigour of growth for the ensuing spring, holding a reserve stock of plants for permanent increase in the borders, and repotting the remainder in autumn for preservation in well-ventilated cold pits, frames, or greenhouses, in which the plants should be very slightly excited in the early months of the year, for successional bloom in the conservatory about April or May.

CULTURE OF BIGNONIAS.

Continued from PLATE XXXIV.

Bignonia picta is an ornamental early summer-flowering plant, suited to medium-sized structures, and requiring the genial temperature of a greenhouse or conservatory, where, if planted in a partially elevated pit or border, that its flexile shoots may extend from ten to fifteen feet along the horizontal or ascending rafters, or upon erect trellis-work where they will be well exposed to the light, it will prove an effective object by its profusion of bloom.

BIGNONIA CULTURE.

Bignonia jasminoides and its variety, are plants of neat habit and limited growth, well adapted for planting in a border or pit of a greenhouse or conservatory, where they may be partially restricted at the roots. They are not to be watered too freely after the annually renewed growth is formed, but allowed a partial rest until the spring. The flowers are produced from the terminal shoots, so that these should on no account be pruned back, unless attenuated growth or a thinly branched habit renders it necessary; they should rather be trained obliquely or reversed to induce lateral growth, by forcing the development of incipient buds from the lower parts. A full exposure of the upper matured growth to vertical light, a somewhat limited space for the root organs, and very moderate waterings after the spring growth is fully matured, are conditions which will be found favourable for the production of blossoms.

Bignonia grandiflora is well adapted for planting in the background border of a vinery or conservatory, in which its growth may have full exposure to light admitted from the roof, and where a genial warm temperature is maintained in the early spring months. It is also suitable for the interior decoration of the entrance areas to large forcing-houses and conservatories. It luxuriates in the ordinary rich mixtures of pulverised turfy loam, heath mould, and leaf soil, used in an unsifted but broken state. As the summer growth progresses it should be freely syringed, and as it advances towards the mature blooming period, it should be uniformly and plentifully supplied with water, for a deficiency of root moisture at this period, attended with a dry or arid atmosphere, will cause the flower-buds to drop off, as they do under similar circumstances in the *Camellia*. After the season of bloom, the branch growth should be encouraged to maturity by giving occasional free waterings at the root, and daily leaf sprinklings with the syringe, until the bark assumes the rich brown tint of that of the Vine. The gradual fall of the leaf will indicate the less importance of moisture in the soil, and from the late autumn months the plants may be allowed to remain dormant until the spring, at which period they should be pruned back to within three or four of the lowest buds of the last or summer-made growth. Where the plant is intended to cover a wide upper or lower space, the luxuriant leading shoots should be pinched back to within a few of the lowest buds, during their rapid growth, to encourage the formation of lateral or side branches; and where the plant indicates great vigour with full exposure to light, all the lower side shoots should be thus shortened during their quick growth to induce a series of lower branches by the development of incipient buds.

Few conservatory shrubs can vie for grandeur of effect with this species when seen in a high state of culture. Indeed, on account of its magnificent racemes of bloom, it ranks with the finest plants yet introduced of this style of growth, and it adds greatly to its value as an ornamental plant that it is generally adapted for a medium temperature while growing, and is comparatively hardy in the dormant winter months. In France it flourishes in the highest luxuriance as an open-air wall shrub, expanding its gorgeous masses of rich bronze and flame-red trumpet flower-tubes in profusion, and when thus seen is attractive above every other flower or tree in the garden. In the mildest seasons of our English climate, as experienced in the western counties, as well as in the warmest localities of Ireland, it has occasionally matured its bloom; but it is only when screened from all opposite extremes of temperature by the treatment now recommended, that its beautiful sunset hues of colour and leaf verdure are fully brought out.

The varieties of *Bignonia radicans* are admirably adapted for planting out in an open-air border, against a wall or screen of trellis-work, requiring a good depth of rich garden-soil to mature their growth for bloom. When well established, their conspicuous blossoms are exceedingly effective. After the winter rest, they should in spring be cut back to within three or four of the lowest buds of the ensuing summer growth, and the roots should be re-surfaced with rich soil. Where the subsoil over which they are planted is dry, water should be freely applied in dry weather to preserve the bloom buds.

DIANTHUS LACINIATUS FLORE-PLENO.

J. Withers del.t C.T.Rosenberg sculp.

PLATE XXXVII.

DIANTHUS LACINIATUS.

THIS is a magnificent addition to the Japan Pinks, derived from the same source as the beautiful *D. Heddewigii*, figured in Plate XXXIII., and distinguished from that variety of *D. sinensis* by its taller growth, somewhat longer internodes or leaf-joints, and its remarkably large and superb flowers, which are from three to four inches in diameter. It produces single and double-blossomed varieties. The petals have large lacerated tooth-like fringes at the margin, from a half-inch to an inch in depth, which are very elegant, and produce a fine appearance. The colours vary from pure white and carmine-rose to brilliant shades of dark crimson with radiate zones or belts of richer hue towards the centre. The seedling varieties also include rich self crimson and maroon tints, in higher and lower degrees of intensity. The light-coloured ones are at times finely stained with rose and violet-crimson, whilst the dark ones are rendered very effective by mottled veins and streaks of white.

This attractive plant is well adapted for pot-culture for the decoration of the conservatory and greenhouse in the early summer months, at which period it forms a valuable addition to other plants not requiring a higher temperature than a genial well-ventilated greenhouse. For this object the earliest autumnal sowings are desirable. The young plants may be matured in the greenhouse, or, if the growth becomes too much excited there, they may be matured and bloomed in a pit or frame, and in April or May, when in flower, removed to the drawing-room or conservatory or closed vestibule. The plant will also be well adapted for flower-gardens, by adopting successive spring sowings in pits or frames, from whence it is to be transplanted, and will then make a gorgeous display in small beds or parterres throughout the summer and autumn months.

Like the allied *D. Heddewigii*, it thrives in well pulverised loam and leaf-mould, with the usual admixture of sand. It must be regarded as one of the most valuable plants in its tribe, and an acquisition wherever ornamental and picturesque flowers are required for grouping, and general decorative purposes. It is a variety of *D. sinensis.*

LYCHNIS HAAGEANA.

(*See* Plate XXXVIII., fig. 4.)

A beautiful hybrid variety, obtained between *Lychnis fulgens* and *L. Sieboldi.* It was raised about the same period in the German gardens and in the South of France. It forms a very effective summer-flowering hardy perennial herbaceous plant, growing from eighteen inches to two feet in height, and having rather hairy stems, which are furnished with ovate or elliptic leaves in the lower parts, and with ovate-lanceolate ones towards the top. The inflorescence consists of terminal cymes, composed of two to four large brilliant orange-tinted scarlet spreading

five-petaled blossoms, each being two inches or more in diameter; the petals deeply lobed at the end, so as to become inversely heart-shaped, slightly toothed or notched at the outer margin, and also having a small narrow sharp projecting lobe or notch on each side.

It is a plant of the easiest culture, thriving in any rich garden soil, and requiring, like most other herbaceous perennials with annual stems, a partial rest from growth during the winter season. It should be caused to vegetate slowly in spring either in a cold pit, or a sheltered flower border; and is moreover useful, when well managed under pot-culture, and allowed to expand its gorgeous blossoms in the cool conservatory or greenhouse.

There are several other ornamental species of *Lychnis* in cultivation. Of these the best are :—

L. fulgens. A well known ornamental half-hardy species, from twelve to eighteen inches in height, with ovately oblong leaves, the terminal flower-corymbs with three or more rich vermilion-scarlet blossoms, each nearly two inches in diameter, having deeply emarginate or four-cleft petals, with lacerate margined segments. Like *L. Haageana*, it thrives in ordinary proportions of loam and leaf-mould, and is adapted for pot culture or for planting in dry flower-borders, requiring in the latter a slight protection over the crown of the plant in winter.

L. coronata, or *L. grandiflora.* This is a handsome half-hardy, or cold frame herbaceous species, growing from one to one-and-a-half feet in height, with ovately-acuminate leaves, and terminal flower clusters, varying with from one to three or more well expanded close-lobed blossoms, two to three inches in width, of a salmon-tinted light orange colour. This is a very gay and effective plant, either for pot culture or for a warm sheltered flower-border, where it is often found to thrive with very slight protection. It is occasionally cultivated for the greenhouse, where it forms an elegant and lively contrast with flowers of other colours. It grows well in almost all garden soils of average quality, if well pulverised and enriched with small proportions of leaf-mould and sandy peat.

L. Bungeana. A rather tall and stately species in its genus, rising by culture from two to four feet in height, with purplish-tinted stems, having opposite ovately-lanceolate, obscurely-fringed leaves, and terminal heads of two or more large rich crimson somewhat star-shaped blossoms, upwards of two inches in diameter, the petal-lobes cuneate or wedge-shaped, with fringed or toothed outer margins. The origin of this distinct species is uncertain, but it appears to have been introduced from China. It is easily grown in dry garden borders, if protected over the root-crown in winter with wood ashes or dry leaf-mould, and when wintered in frames or pits it should be caused to vegetate slowly in the winter or spring months.

L. Sieboldi. A very interesting and beautiful half-hardy species of neat dwarf growth, from twelve to eighteen inches in height, with opposite ovately-oblong leaves, and terminal heads of two or more large conspicuous pure white blossoms, each nearly two inches in diameter. It is well adapted for pot-culture in a cool frame or pit, where it should be allowed a partial rest from growth in the winter months, and from thence transferred to a well-ventilated greenhouse or conservatory in spring, where it forms a striking object with other plants. Like most of the allied kinds, it grows freely in good pulverised loam, with a small proportion of leaf and heath mould.

L. chalcedonica flore-pleno. This is well-known as the double-flowered scarlet Lychnis of the gardens, and though an old plant, it is an established favourite, and should be allowed a place in every good collection of hardy perennials. By good culture it forms a firm neat erect-growing plant of a rather robust habit, from three to four feet in height, with somewhat hispid or hairy stems, and terminal close flat dense heads of bright scarlet flowers, about the average size of a cherry-blossom. This fine old species is also found varying with single and double white flowers, as well as with a more dense and dwarf style of growth, each being well adapted for garden flower-borders.

L. alpina. This is well known as one of the prettiest of the small dwarf alpine species. It forms a neat single-stemmed plant, four to six inches in height, with a compact radiate tuft of small lanceolate leaves, little more than one inch in length, and a terminal conspicuous corymb of lively red flowers, with emarginate or lobed petals.

Mrs Withers, Delt.

PYRETHRUM ROSEUM, VARS:

Printed by C. Chabot

1. Atrosanguineum. 2. Duchesse de Brabant. 3. Charles Baltet.

4. LYCHNIS HAAGEANA.

ILLUSTRATED BOUQUET.

PLATE XXXVIII.

PYRETHRUM ROSEUM.

IN the class of hardy herbaceous perennials, the *Pyrethrum* has, up to a very recent period, occupied but an inferior position in relation to ornamental effect in the flower-garden, the majority of the species being either white or yellow-flowered, and having a lax ineffective style of growth, and indifferent loose star-like blossoms, so that they have become better known by their neatly divided leaves than by any other feature. For a considerable period *Pyrethrum carneum*, and *P. roseum*, were the only pretty-flowered species to be found in English gardens: these differing from the rest in their richer coloured flower-heads, which have pale rose or rosy-purple rays. The varieties which are illustrated in the accompanying Plate show that a very marked advance has been made by obtaining seedlings from the above-named species, the new varieties being of a richer colour in diversified shades, with single, semi-double, and double flower-heads, these improved qualities being combined with a dwarfer and denser habit of growth.

Fig. 1. P. R. ATROSANGUINEUM.—A beautiful variety, from one and a half to two feet in height, having very elegant dark green doubly winged leaves, with sharp tooth-like segments; flower-scapes green, with scattered leaflets, purplish at the base. Flower-heads nearly three inches in diameter; rays rich violet-crimson, richly contrasted with a golden-yellow disc.

Fig. 2. P. R. DUCHESSE DE BRABANT.—Neat, dwarf, and compact in growth, from twelve to eighteen inches in height; leaves pinnatifid, with gracefully winged, finely pointed segments; flower-heads large, nearly four inches in width, the rays rich rosy-crimson, the disc prominent bright yellow.

Fig. 3. P. R. CHARLES BALTET.—This is a very handsome plant of more robust growth, the foliage equally handsome with the preceding; the flower-heads large, terminal, semi-double, four inches in diameter; the central or disc florets transformed to a dense series of short light rose or pink-tinted tubes, which are surrounded by the beautiful strap-shaped rich rosy carmine red florets of the ray.

The varieties from among which the foregoing were selected, were obtained from Germany, where it is supposed they originated, and they afford rich promise that the group to which they belong will furnish valuable additions to the class of early summer-flowering plants, amongst which their peculiarly rich tints will have a fine effect when mingled with other colours.

These plants are found to thrive in ordinary good garden soil, and during the early part of the summer are very elegant objects, either as single specimens, or placed in detached groups or in small beds. Their very finely lobed and graceful dark green foliage, apart from the large and conspicuous rosy-violet and crimson-rayed flower-heads, will eventually place them amongst the most desirable plants in the natural section to which they belong. One valuable feature in these varieties consists in their having a tendency to produce a second series of flower-heads in the later summer months, and in order to secure a continuation of such, it is recommended to cut away the first flower-stems on their first decline in June or July, and to encourage a vigorous development of the second by surfacing the bed, or dressing around the groups of plants, with a layer of leaf-mould and rich soil, by which treatment a succession of flower-stems will be produced in August and September.

The following additional kinds are considered to be among the finest which have hitherto appeared in the same section as the preceding :—

P. roseum nanum, or *P. carneum nanum*. A very pretty and distinct variety, about eighteen inches in height, with delicate green pinnatifid leaves ; flower-stems green, with scattered leaflets ; flower-heads comparatively large, nearly three inches in diameter, white, elegantly tinted with blush-pink, prominently relieved by an orange yellow disc. This is apparently of more decidedly perennial duration than others, and forms a charming contrast to the higher coloured varieties.

P. Delhayii. A showy variety, of robust habit. Flower-stems eighteen to twenty-four inches in height ; leaves with finely divided lobes or segments ; flower-heads from two to three inches in diameter, with a yellow disc and rich reddish-crimson rays.

P. Tom Pouce. A charming little plant from four to six inches in height, with elegantly divided dark green pinnatifid leaves, and compact flower-heads, nearly two inches in diameter, the rays very rich violet-crimson.

P. Gloire de Mayence. A very ornamental flowered variety of more robust growth, from two to three feet in height, the stems green, purple-tinted at the base, with green glossy leaves, and beautiful bright crimson semi-double flower-heads, three inches in width.

P. Millerii. A variety of neat, dwarf, and compact habit, with rich dark-green foliage, and broad purplish rose-coloured flower-rays.

P. Ambroise Verschaffelt. A large and ornamental dark reddish-crimson variety with double flower-heads, the centre being changed to a dense series of short coloured florets, and surrounded with a large outer ray of strap-shaped flower lobes.

P. Theophile Massart. A handsome and desirable variety, on account of its colour, which is blush-white. Its flower-heads are large, double, nearly four inches in diameter, the outer florets forming a semi-double series of well expanded and compact flower-rays.

The two following are the principal kinds extensively employed for decorative effect, the first being used for large groups or beds, the second for planting amongst tall masses of evergreen shrubs :—

P. Parthenium flore-pleno. This well known but scarcely appreciated variety, forms a neat dwarf branching plant, from one to two feet in height, with smallish deeply cut leaves, yielding upon the slightest pressure a rather strong but not offensive odour. Throughout the summer and autumn months the plants produce a profusion of the most double snow-white daisy-like flower-heads, equal to the finest white miniature or Pompone Chrysanthemum. For single portable specimens, which under culture will attain from two to three feet in diameter, or for partial groups or larger masses, it is one of the leading plants in its style of growth. There are several inferior varieties with double flowers, but the one now described is only to be multiplied by cuttings, and not by seeds.

P. uliginosum. A tall late summer and autumn flowering hardy perennial herbaceous plant, growing from five to seven feet in height, with dark green willow-like leaves, and numerous large, conspicuous, close, snow-white Chrysanthemum-like flowers, from three to four inches in diameter, forming a very effective object against a dark green background of evergreen foliage.

For the description of Lychnis Haageana (Pl. XXXVIII., fig. 4) see under Plate XXXVII.

Miss Sowerby, Delt. CLEMATIS VITICELLA, Var: VENOSA. *Printed by C. Chabot.*

ILLUSTRATED BOUQUET.

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PLATE XXXIX.

CLEMATIS VITICELLA, VAR. VENOSA.

AMONGST hardy climbing shrubs there are none which, for general usefulness and adaptation to the greatest variety of positions in the flower garden, claim precedence of those which are included in the genus *Clematis*, which bears the popular name of Virgin's Bower. The majority of the species, including also the most beautiful, are hardy climbing shrubs of neat slender growth, thriving in all good ordinary garden soils, blooming throughout the spring summer and autumn months, adapted severally either for walls, borders, trellis-work, or pot-culture, and producing a greater profusion of bloom in their respective seasons than any other class of similar-habited plants. Beyond many others, they are exempt from the objections occasionally made against climbing plants, that of being subject to failure in bloom by excess of growth, or of being rugged in appearance after the flowering period is over, or of requiring an indefinite space to induce fertility of bloom. Since the acquisition of the beautiful Japanese species, the value and interest attaching to the genus has greatly increased, and the finer kinds in their varied features of adaptation for decorative purposes, are generally appreciated, so that few establishments of any extent are met with in which their prodigality of bloom, or their remarkable beauty at an earlier or later period of the year, are not found contributing rich and attractive features of embellishment either to the open garden or the conservatory.

The profusion of white delicately-fragrant blossoms which in *C. montana* and its varieties, are like stars depicted upon a darkened surface of leafy verdure, and the still larger flowers, and light-azure or porcelain blue tints in *C. lanuginosa* and its allies, render these, as climbing plants, unrivalled in their style and effect by any others of equal neatness and hardiness of growth. In the diversified features and extended growth of many of the species, are to be found materials wherewith to adorn the wildest sylvan scenery of the most extensive rural domain, whilst the more elegant smaller species are equally adapted for the limited extent of the gardens of villa and suburban residences, and are applicable either for purposes of pot-culture or for decoration on walls or trellis work in the open air.

Amongst the most recently introduced kinds, the one forming the subject of the present illustration may be particularly pointed out as deserving a place in every selection of ornamental plants. It forms a very neat summer and autumn flowering plant, furnished with small tri-ternate leaves, the individual leaflets of which vary from a roundish to an ovately-cordate outline, and have either a single side lobe or a pair of opposite ones. The large and handsome flowers are produced from the axils on rather long slender pedicels; they are at first nodding, but gradually assume a more erect position, and exhibit the bold flattish expanded blossoms of a somewhat leathery texture from three to four-and-a-half inches in diameter, of a rich violet-tinted purple, each of the ovately heart-shaped flower lobes or sepals being picturesquely marked through the centre with a conspicuous flamed red stripe. There is also to be seen an exquisite tracery of net-like veins ramifying over the whole surface. The paler bar of the centre yields a suitable contrast to the higher colours of the margin, whilst the under surface shows the counterpart of the stripe

on the front in three lighter red-coloured lines. The effect of these varied colours and markings, is, in the aggregate, singularly elegant.

Being a free growing hardy climbing shrub, it is admirably adapted for covering arched or upright trellis work, either against ornamental pillars or conservative walls. It is equally suitable for training over wicker or wire-work around large flower moulds or basket groups. From its neat habit of growth it is well adapted for border-culture in cool greenhouse or conservatory promenades, where well exposed to light; while the long-continued bloom throughout the late autumn season will render it specially valuable, when planted permanently against walls in ordinary flower borders, or as portable specimens in pots, for garden decoration in succession to all the other large flowered kinds.

Amongst the more ornamental species and varieties of Virgin's Bower, the following kinds, in addition to that which is now figured, are the most desirable for general culture, where extensive growth and dense cover are required:—

C. montana.—This is one of the most useful of hardy climbing shrubs. It forms a neat, yet vigorous medium-sized or large plant extending from ten to thirty feet in height, with neat ternate, or three-lobed leaves, the leaflets of which are of an oblong acuminate outline, with short-pointed lobe-like incisions, which, in mature growth, are often found prominently and uniformly toothed. In situations which are favourable as regards soil and aspect, it produces a profusion of brilliant white blossoms, occasionally tinged with pink, and diffusing a grateful odour, studding the lustrous green foliage of the back ground with myriads of star-like blossoms forming wreaths of snowy whiteness during the spring and early summer months. For covering a large extent of wall or trellis surface, or for decorating huge masses of lofty rock work in rural scenery, and where heavy screens are required on rugged acclivities, this species is admirably adapted, on account of its extensive growth and rich garniture of summer foliage.

C. montana grandiflora.—This variety is, with the preceding, a native of Nepal, or Northern India. It forms a large plant of similar habit, attaining from twenty to forty feet in extent, according to the conditions of growth. The numerous white fragrant blossoms are considerably larger than in the original species, and where due space is allowed for its luxuriant branches, it will cover a great extent of surface, over which its numerous large blossoms are seen to be conspicuously beautiful in contrast with the rich leaf verdure.

C. Hendersoni: also sometimes called *C. hybrida* in gardens.—An ornamental, vigorous sub-herbaceous hardy flowering plant, growing from six to eight feet in height, having the stems half shrubby at the base. The spring growth assumes a slender sub-erect habit, but eventually is dependent; the numerous pliable branches are angularly grooved or ridged, of a reddish-brown tint whilst growing, and afterwards of a greyish-white, with alternate brown angles. The leaves are obscurely pubescent while young, and singularly variable, the lower series being simply ovate on channeled pedicels or foot-stalks; others are unequally lobed, and afterwards, in the higher series, they gradually change from a regular pinnatifid outline to a truly pinnated form. The flowers are of a cruciform shape, with four diverging ovately-oblong sepals or flower leaves, of a rich purplish-blue colour, and are produced in great profusion during the summer and early autumn months. It forms a very neat and handsome plant for wall culture, or a trellis screen, where summer verdure is required; and in its continuous bloom forms a good contrast to the white flowering species. For winter treatment a similar method is to be observed as for other deciduous suffruticose plants, namely, the upper part of the annual growth is to be pruned back to within eighteen inches or two feet of the base.

C. Flammula.—This well-known and extensively cultivated species is one of the most interesting of late summer and autumn flowering hardy climbers. It is neat and slender, yet free and vigorous in its habit of growth, whilst its small dark-green glossy foliage forms a rich back-ground to the profusion of delicately fragrant white starry blossoms, which renders it effectively beautiful as it spreads its festoon-like branches over the trellised arch or entrance porch. It is admirably adapted for wall culture, or for covering the pillared approaches to villa residences, either trained along the summit of side-approach walls or interwined with stone or iron palisade-work. It presents a beautiful object when planted on rising eminences in sylvan scenery: in such situations assuming a decumbent growth, its masses of snow-white bloom seeming to pour down the declivities below, embalming the atmosphere with their odour. It is adapted for common soils, and for nearly all positions of growth where exempt from shade, and undoubtedly ranks as one of the most compact climbers for a limited extent of surface or cover. It is, moreover, one of the latest to decorate the garden.

Some other desirable and highly ornamental species of *Clematis* of a less vigorous character of growth, will be noticed under Plate XL.

SPHÆROSTEMA MARMORATUM.

Mr. Withers, Delt. Printed by C. Chabot.

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PLATE XL.

SPHÆROSTEMA MARMORATUM.

THIS is a plant of fine habit, and one of the most recent and valuable additions to the group of ornamental stove shrubs with silvery-spotted leaves. The genus to which it belongs has not hitherto been noted for the ornamental character of its species, but the present one must be admitted as a remarkable exception, and a welcome addition to our plant stoves. We are indebted for its introduction to the enterprise of Hugh Low, Jun., Esq., by whom it was discovered during an expedition to the Kina Baloo Mountain, in Borneo, and from whom it was received in the establishment of Messrs. Hugh Low and Co., of the Clapton Nursery.

It forms a vigorous evergreen hothouse plant, of noble aspect, having bronzy red stems of sub-climbing habit and of free growth, decorated with comparatively large, firm leathery, acuminately heart-shaped leaves, which are obscurely dentated at the margin, somewhat rugose on the surface, and marked with depressed narrow nearly opposite groove-like nerves, between which the intermediate spaces are very beautifully marked throughout with numerous silvery-white fleece-like spots or clouds, varying in detached masses, and unbroken flakes. These picturesque stains appear in bright contrast with the rich dark green ground colour, and, when viewed in a strong light, show a scintillating brilliancy to the eye, whilst the silvery line extending along the extreme leaf-margins seems to add an exquisite finish to the foliage of this rare and desirable plant.

By superior culture this novel species will form a grand addition to the ornamental-leaved plants now so much used for exhibitions, by reason of its bold ligneous character, and broad laurel-like evergreen leaves. It will be found specially adapted for training into an elegant conical or pyramidal outline. Its robust growth moreover, fits it for the successive exposure attending horticultural fêtes; and its permanent leaf-verdure is, in a great measure, proof against the reverses to which plants of more yielding structure and slender growth are liable, by exposure to extremes of temperature.

Decorative plants of vigorous growth, with silvery hues, or marbled white variegation, are yet comparatively scarce, but the species now described will supply a leading feature in diversified groups of such, and prove a highly attractive object in the tropical conservatory and hothouse throughout the year.

SELECT SPECIES OF CLEMATIS.

(See Plate XXXIX.)

For the more limited extent available in villa gardens, and for cool conservative or greenhouse promenades attached to suburban residences, the following kinds of *Clematis* are more specially adapted on account of their neat habit of growth and ornamental bloom:—

C. cœrulea grandiflora: also known as *C. azurea grandiflora* and *C. patens.*—This ornamental species, a native of Japan, forms a neat slender climbing shrub with dark-brown hairy stems and foot-stalks, having ternate or three-lobed leaves, the leaflets

being comparatively small, of an acutely-pointed ovate figure. The numerous large solitary violet-purple semi-transparent flowers, are somewhat starry, four to six inches in width, with oblong-lanceolate sepals or flower-lobes, relieved by a depressed circular cluster of deep reddish-purple stamens in the disc. It is a perfectly hardy shrub; and from its tendency to bloom in the early summer months, it presents a gay and conspicuous effect upon a wall, or by pot-culture in a cool conservatory, or trellis-arched avenue approach. One valuable feature in its character arises from its tendency to form additional flowers upon the late summer growth where the root-action is favourable to their development.

C. cœrulea grandiflora, varieties.—Of this beautiful plant, the varieties *Helena, Sophia, Amalia,* and *Louisa,* are ornamental flowering kinds, introduced from Japan by Dr. Siebold. In character they appear to be seminal varieties intermediate between *C. cœrulea grandiflora* (*patens*) and *C. florida,* of a neat, deciduous habit, and with numerous large blossoms more or less similar to those of the just-named species; these blossoms are from three to four inches in width, varying in colour from pale blush or lilac to purplish-blue, and produced during the early summer months The plants are well adapted for wall or trellis-culture. Their vigorous, yet medium extent of growth, from five to seven feet in height, also renders them suitable to the generality of flower-gardens.

C. cœrulea odorata.—A neat slender half-shrubby sub-climber, with obscurely-angled stems, uniformly grooved throughout their length, of a purplish red glossy tint whilst young, and blended reddish grey when matured. The leaves are small or medium-sized, variable in being simply opposite and ovate in the lowest series, and progressively three-lobed and pinnatifid in the higher ones, whilst the highest developments are unequally pinnate. The numerous blossoms are borne on rather long terminal and axillary pedicels, with small spreading distant reddish-purple sepals, which prettily contrast with the numerous white barren styles in the disc, and diffuse a grateful hawthorn scent. Its rich-toned leaf verdure, and numerous flowers, furnishing a continuous bloom throughout the summer and autumn, make it a desirable addition to the many gay ornaments of the flower-garden. It forms a suitable plant for large or small groups in all bedding arrangements, is admirably adapted for planting upon massive rock-work, and is also equally suitable for single specimens, either trained in an upright or decumbent form, in flower borders and select shrubberies.

C. lanuginosa.—This is perhaps the most remarkable and beautiful species in the genus. It is a native of China and Japan, and forms a neat vigorous plant, with pliant hairy stems of a purplish tinted green hue in a growing state, and of a reddish-grey colour when mature. The leaves differ from the allied species in being entire, or ternate, and opposite, of an ovately heart-shaped outline, smooth and glossy on the upper surface, and hairy beneath. The blossoms are superior to all others in size, of a compact expanded outline, from six to eight inches in diameter, and of a delicate clear light porcelain-blue. Being perfectly hardy it forms an ornamental object in bloom for border culture in the open flower-garden, against a wall from six to ten feet in elevation; and for pot culture in cool conservatories or greenhouses it is admirably adapted for trellis-work designs. When planted in the ground-bed of these structures with a clear exposure to light, its splendid large flower-lobes are seen to great advantage around the trellised pillars, or, as often seen, trained on the intervening spaces in conservatory promenades.

C. Sieboldi: also known as *C. bicolor.*—This picturesque-flowered plant is considered but a variety of *C. florida,* both having been introduced from Japan. Like its prototype, it is an extremely neat slender-stemmed shrub, with comparatively small triternate leaves, and ovate leaflets, occasionally marked with small marginal lobes or incisions. Its very ornamental and closely lobed expanded white blossoms, from three to four inches in diameter, are produced in long succession throughout the spring and summer months, and are highly ornamental; their numerous large dark purple petaloid sterile stamens forming a conspicuous spreading ray-like circle in the disc or centre of each flower. Like *C. cœrulea grandiflora,* it is also well adapted for decoration on flower-garden walls, and is very effective for planting within a cool conservatory, to entwine around pillar supports, where well exposed to light. It is also equally adapted for covering trellised designs, when grown in pots in greenhouses.

C. florida.—A small, yet neat and effective slender twining hardy shrub, from four to six feet in height, distinguished by its pliant greyish stems in mature growth. The small leaves are produced in opposite pairs, and are of a triternate, or three-lobed form when fully developed in mature specimens, the individual leaflets being ovately acuminate in outline. The conspicuously large clear creamy-white blossoms, from two to three inches in width, are abundantly produced in long succession through the summer months. It is a suitable plant for low garden walls or trellis-work on well-drained garden borders, and is also adapted for pot-culture in cool greenhouses.

C. florida flore-pleno.—This, which is a permanent seminal variety of the preceding species, is of a similar habit of growth; but it differs in producing multiplicate or double flowers equally large and still more ornamental. It is adapted for similar positions in the flower garden, and blooms at the same period as *C. florida* itself.

Miss Sowerby, Delt. TYDÆA. Printed by C. Chabot.

1. Ignescens. 2. Lurline. 3. Volunteer.
4. Countess of Ilchester.

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PLATE XLI.

NEW VARIETIES OF TYDÆA.

THE plants forming that section of the well-known genus *Achimenes*, now called *Tydæa*, are distinguished from the more typical kinds by their stouter more fleshy half-shrubby stems, and by their being plants of continuous growth, blooming throughout the summer autumn and winter months. It is of some of the choicest new varieties of this family that the accompanying plate offers beautiful illustrations: those therein represented being:—

Fig. 1. IGNESCENS.—Flowers orange-scarlet, banded and spotted with crimson.

Fig. 2. LURLINE.—Flowers rich salmon-colour, elegantly banded and spotted with cerise and crimson.

Fig. 3. VOLUNTEER.—Flowers light rose-crimson, with club-shaped bands and spots of deep velvety blood-red.

Fig. 4. COUNTESS OF ILCHESTER.—Flowers rosy-crimson, marked with curved deep crimson bars, united at their points, and dotted near the edge with spots of the same colour.

The *Tydæas* form one of the most useful and effective groups of flowering plants for in-door decoration. Their easy management, where a warm temperature can be afforded, and their neat habit of growth, in connection with a profusion and long continuance of bloom, are strong recommendations, and fully account for their increasing popularity. These plants, moreover, afford a long and unbroken supply of flowers of the most varied and brilliant colours, for the ornamentation of the warm conservatory and stove during the most barren months of the year, and their picturesque markings and brilliant tints are invaluable in furnishing drawing-room basket-groups and portable flower-vases. Indeed, such exquisite tracery and brilliance of colour as may be seen in their flowers—orange, scarlet, crimson, and violet, overlaid upon the richest cramoise-purple and rosy-crimson—is not elsewhere to be met with.

The varieties of *Tydæa*, like those of the *Achimenes*, require a warm summer temperature and near exposure to light during their growth, in order to obtain vigorous healthy development. A high genially moist top-temperature during their first stages of growth will be found favourable for this purpose; but where continuous growth for winter blooming, or exhibition plants is required, a well-regulated root or surface heat, supplied for some weeks, will be of essential aid. This may be applied either by the assistance of a tank or gutter heating apparatus; or in the absence of such, by employing for the purpose, the back or front space of a melon or cucumber bed. Where a succession of winter-flowering hot-house plants is sought, a very excellent substitute for other means of affording root-warmth may be found by devoting to the purpose a sufficient space, three or four lights perhaps, of a deep cold pit, into which fermenting material, as tan, leaves, &c., may be placed to the depth of five feet at the back, and not less than three and a half in front. By the occasional renewal of such materials, *Tydæas* and similar plants may be brought forward for bloom, and large stores or specimens may be accommodated at any required distance from, or nearness to, the light. Where a brisk heat is maintained for special purposes, the excessive humidity may be moderated by a surface stratum of sawdust, aided by a slight back ventilation at night as well as by day, and also by a free morning ventilation for an hour or so, which may be effected by tilting the *outer* side of each end light

and the inner ones uniformly. During very mild weather the lights may even be drawn back early each morning or day in the absence of strong sunlight, for an hour more or less, as requisite. These precautions will secure a genial and healthy atmosphere, and, together with the occasional turning of the heating material, will be found a general preventive to unhealthy vapours, or the generation of fungi. In order to avoid an extremely high temperature, and the consequent humidity of the atmosphere in close deep pits, it is preferable, when renewing the heating materials, to mix with the new an equal quantity of the coarser parts of the old tan, such as may be at the time in use, and which may be separated from the finer parts by sifting.

Where the winter-flowering *Tydæas* are required for successional display, apart from the aid of hot-water tanks for surface-heat, a good substitute may be provided by adapting a portion of the stage or platform of the house, to form a pit for fermented materials equal in capacity to that already noticed, and here the plants may be partially plunged or placed, so as to receive a genial root-temperature. In carrying out the foregoing suggestions, it is understood by practical cultivators that plants intended for late autumn or winter bloom should not be repotted at a late period unless absolutely required. The time of potting should be regulated by the ability to afford suitable after-treatment by the aid of surface-heat.

The following kinds are amongst the finest of those recently produced :—

T. Ignescens. A beautiful exhibition variety, growing from one to two feet in height, of a neat but free habit of growth, with medium-sized heart-shaped leaves, and bearing a profusion of terminal and axillary flower-stems, supporting numerous brilliant funnel-shaped scarlet tubes, which expand into a round-lobed salver-like limb or border, of a bright orange-scarlet ground colour. The inner part of the tube is golden yellow, ribbed with carmine-red lines; the border being richly banded and spotted with dark crimson. Its compact growth, multiplicity of bloom, and exceedingly attractive colours, will render this a valuable variety for conservatory decoration. The original plant had upwards of five hundred blooms and flower-buds upon it at one time.

T. Lurline. This fine variety is distinguished by its dark brown stems and heart-shaped leaves of a rich olive-green hue, prominently nerved on the under, and correspondingly impressed on the upper side, and having the surface rugose or corrugated, and marked with thinly scattered white hairs. The flower-tubes are orange-scarlet on the upper side. The throat and lobes show an ochraceous white ground, suffused with rich salmon, richly banded and spotted with brilliant cerise, and carmine-crimson. The combination of light ground tints in this variety with the striking surface colours, impart a beautiful and effective contrast.

T. Volunteer. A neat dwarf branching plant with dark blood-coloured stems clothed with short villous hairs, and having ovately-heart-shaped leaves, prominently nerved with crimson-tinted main veins. The handsome evenly expanded close-lobed salver-like blossoms, with orange-scarlet tubes, are elegantly banded with club-shaped bars on a light cramoise-crimson ground, and studded on the margin with dark velvety crimson spots.

T. Countess of Ilchester. An exceedingly beautiful plant of neat erect growth, with acuminately-ovate glossy leaves, roundly indented on the margins. The ventricose flower-tubes are crimson-scarlet, showing a yellow throat scored with carmine-red lines. The border or limb expands to an even-margined salver-like outline, nearly two inches in width, of a very rich cramoise-crimson ground tint, picturesquely marked with curved crimson bars linked at their summits, the surrounding margin or belt being finely studded with dark crimson velvet-like spots. This fine plant, on account of its free growth and bloom, will be found valuable for the decoration of the warm conservatory and hothouse during the autumn and winter months.

T. Beauty. This is a charming variety, with rich velvety heart-shaped leaves of a green ground tint, marked with dark olive-green spaces. The blossoms are numerous, having a conspicuous yellow centre expanding to a bright crimson-scarlet border or limb, beautifully marked with picturesque dark crimson velvet-like spots and bars. A desirable plant for summer and late autumn flowering.

T. Elegantissima. A dwarfer variety of distinct and effectively beautiful features, having dark red stems clothed with soft hairs and ovately lance-shaped leaves, and having numerous funnel-shaped blossoms, with light scarlet tubes, expanding to a lively salmon-tinted rose-coloured limb or border. The throat, or inner part of the tube, is creamy white, elegantly traced with rosy carmine lines at the base, verging to crimson at the summits. The front circular border is also picturesquely belted with rosy-carmine.

T. Lady Digby. A neat, erect, vigorous plant, growing from one to two feet high, with dark crimson stems, and ovately-oblong leaves, the numerous rich, violet rosy-crimson, even close-lobed blossoms being nearly two inches in width, picturesquely marked over the entire width with intensely dark crimson velvet-like bars and spots. The interior yellow throat is spotted with carmine red, and rises into a dark crimson narrow belt around the disc or throat. A very beautiful variety for late summer and autumn blooming.

Mrs Withers Delt. STOKESIA CYANEA. Printed by C. Chabot.

ILLUSTRATED BOUQUET.

Published by E. G. Henderson and Son.

PLATE XLII.

STOKESIA CYANEA.

THIS truly handsome species, the only one of the genus yet recorded, is a native of the North American provinces. Though introduced to the Kew Botanic Garden nearly a century ago, it appears to have been subsequently lost, and has only within the last few years reappeared in English gardens, where it still remains a comparatively rare plant.

It must be regarded as one of the finest border flowers in the natural order of Composites, to which it belongs. It forms a neat but vigorous half-hardy perennial herbaceous plant, growing from one and a half to two feet in height, having obscurely pilose purplish-tinted green stems, and rich green lanceolate leaves, of which the lower or earliest series are contracted at the base to narrow-leaf margins, dilating upwards, and showing a somewhat sharp channeled outline, while in the more mature growth the blades assume a greater width at their junction with the stem; they are also occasionally wave-lobed and dentated at the margins near the base. The upper leaves are considerably smaller, of an ovately-oblong or broadly lanceolate outline, rather convolute at the base, and margined at the lower end with small teeth or lobes. The uppermost leaves form a crowded imbricate involucre, the smallest of which are ciliated or fringed with minute sub-spinulose teeth. Immediately above these the beautiful large flower heads expand. They have the appearance and outline of the largest rich porcelain purplish-blue Chinese Asters, and are from three and a half to five inches in diameter. The large evenly expanded ray, or "guard" florets, are cleft at the extremities, whilst the centre or disc of each flower forms a close head of short strap-shaped florets, of similar colour to the larger ray, but occasionally tinged with reddish-purple.

The *Stokesia* forms an admirable plant for late summer flower-garden groups and small beds, for its ample yet neat foliage makes a rich surface, and its large gay attractive blossoms are conspicuous objects in their unique petal-tints. It is also well adapted for pot-culture in the greenhouse and conservatory as a decorative plant during the summer and autumn months. In such positions it forms a distinct and valuable feature from July until October and November.

For successional bloom in these departments it is requisite to protect the general stock by culture in frames or pits, and thus to carry on the growth of the vigorous plants of the previous autumn by protection from severe frost, giving abundant ventilation in all mild weather, until the genial months of spring, when the plants may be replanted out in groups, or treated as specimens for conservatory decoration. Such prepared plants will produce an earlier display, and yield a longer succession of bloom.

The distinct character and appearance of this species mark it as one of the most suitable of modern re-introductions for special growth in pots to form portable groups, or large beds. To effect this, the strongest divisions, or single crowns, should be potted as early as October or November, and kept exposed upon a dry surfaced border. On the approach of severe frost, they are to be half plunged in thoroughly dried sawdust, or sifted ashes, within

pits or frames, as previously recommended, being well ventilated in mild weather proportionately by day and night, and having water withheld from the soil on the approach of frost. In the spring the plants should be more freely exposed as the weather permits, being gradually inured to full exposure as a preparation for early summer planting, or for forming select store specimens of three or more plants in each pot, for exhibition, or for grouping in the flower-garden and conservatory. The successional bloom-buds keep up a long display. Being a later flowering plant than any of the large Asters or Marigolds—the flowers of the autumnal season, it is one of the last and most beautiful of its colour to enrich the flower-vase, or to decorate the garden.

The plants thrive in all ordinary good garden-soils, or for pot-culture may be planted in a mixture of three parts of friable turfy loam to two of blended leaf and heath-mould.

Mrs Withers, Delt. PORTLANDIA PLATANTHA. Printed by C. Chabot.

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PLATE XLIII.

PORTLANDIA PLATANTHA.

THE genus Portlandia has long found a place in plant collections, where it has been represented by the well-known *P. grandiflora,* which for a considerable period was the only member of the genus known in cultivation. The species now described is the most valuable, and the only one proved to be distinct, of recent introduction. The beauty of the plant entitles it to special notice, and renders it deserving of commendation to cultivators of rare and tropical plants; while its manageable habit where the proper conveniences for its cultivation can be provided, affords an additional recommendation.

Portlandia platantha forms a handsome dwarf evergreen hothouse shrub, growing from one to three feet in height, and having large obovate or elliptic leaves, with a laurel-like aspect, of a rich deep glossy green colour, obscurely nerved, and of half-leathery texture. The large showy white and highly-fragrant broad funnel-shaped blossoms, which are from four to six inches in length, and three to four inches in diameter, are produced in the axils of the opposite leaves, either solitary, or in pairs, upon plants of comparatively small size; indeed, they are not unfrequently developed from the lowest joints or leaf-buds, near the base of the stem. Previous to its expansion, the flower-tube, which is of a creamy tint, has a long, club-shaped outline, and is not unlike a large antique ear-drop, having deep longitudinal sharp-ridged angles, and alternate grooves or furrows, which converge somewhat abruptly to form a blunt tip. These angular ridges correspond to the prominent nerve-like line which extends in the opened flower to each of the sinuses of the ovate flower-lobes: these latter, when fully expanded, being somewhat revolute at the margins. The interior base of the flower is of a delicate green hue, merging into a pure white towards the expanded limb, and the projecting orange-tinted thread-like anthers add a picturesque effect to the snow-white lobes. The blossoms diffuse a rich aromatic odour whilst they continue in a state of perfection.

This plant forms a valuable addition to the most select groups of hothouse plants, and requires only to be cultivated in small or medium-sized pots. As an evergreen alone, it is probably unsurpassed, on account of its bold ample foliage, of a rich and shining dark-tinted green; and these again, viewing it as a flowering plant, form a richly-effective ground, upon which the remarkably large and beautiful flowers are displayed to great advantage. An additional value and interest attaches to this rare plant, on account of its tendency to develope bloom at different periods throughout the year, as its successive leaf-buds are matured and re-stimulated by a genial warm temperature, after a partial rest.

The similarity between this and other reputed species under ordinary growth makes a correct knowledge of their respective features desirable, in order to avoid the acquisition of duplicates, which are not required. In the present instance, apart from the bolder habit of growth which obtains in *P. platantha,* the large and incrassated mid-nerve at the base of each leaf, will readily distinguish it from other kinds.

PORTLANDIA PLATANTHA.

The following species, in addition to the subject of our plate, are all that are known to exist, in a cultivated state in English collections :—

P. grandiflora. A neat hothouse shrub, growing from two to three feet in height, furnished with smooth, glossy, oblong or broad obovate, laurel-like leaves, and bearing comparatively large, ventricosely funnel-shaped, fragrant, white flowers, which expand into an ovately-lobed limb, three to four inches in width.

P. coccinea. This plant, a reputed species, has not flowered in European collections, but it is apparently distinct in its features from the preceding, being of a less robust habit of growth, with narrower, oblong lanceolate, dark green glossy-surfaced leaves, scarcely nervose, and less acuminate at the point. These are the most obvious differences to be observed during its comparatively juvenile growth.

P. rosea? The specimens of this plant have a less robust habit of growth than any other of the recorded species; and it is further distinguished by its acuminate lanceolate leaves, which are inclined to assume a drooping position. The leaves are also of a lighter green tint, having the veins continued to the margin and conspicuous on the upper surface.

ALOCASIA METALLICA.

PLATE XLIV.

ALOCASIA METALLICA.

OF the many new and strikingly diversified forms of leaf-variegation which occur in the group Aroideæ, (including the popular genus *Caladium*, of which so many forms now adorn our collections of tropical plants,) it must be admitted, that in its uniquely attractive features and wonderful combinations of colour, the plant which forms the subject of the present illustration takes precedence of all others. It was originally received by Messrs. Hugh Low & Co., of the Clapton Nursery, through the instrumentality of Mr. Hugh Low, junior, of Borneo, who discovered it during an expedition to the Kina Baloo mountain, where it inhabits the most humid districts, and there forms a very striking feature in the local forms of vegetation.

From the vignette outline of the plant represented in the plate, taken in connection with the larger figure which shows its mature leaf-growth, it will be inferred that this *Alocasia* forms a highly ornamental and robust, yet compactly habited evergreen hothouse plant, of an ornate and somewhat majestic character, attaining from two to three feet in height. The bases of the leaf-stalks are divergent, and imbricately sheathed at the point of union with the crown of the root, dilated for three or four inches upwards into a broad attenuated wing-like border two or three inches in width below, the margin being reddish-rose-coloured and membranous, and the apex terminating abruptly in small projecting side lobes. Above this point, the leaf-stalks are rounded behind and depressed or somewhat hollowed out in front, of a bright green colour; they rise erect from one and a half to two feet in height, at which height the large and magnificent leaf-blades commence their expansion. These latter have their points deflected, so as to stand nearly vertical, and are shield-like in form, and when of mature growth from sixteen to twenty inches in length, and from twelve to sixteen inches in width; they are cordate-oblong in outline, with gracefully undulating margins, and lengthened out to a short acuminate point. The surface shows a dense dark under-tint of green, richly suffused and shaded with a metallic coppery-red lustre, which is so variable in tint, according to the age of the leaf or the degree of exposure to light, occasioned partly by reason of their broadly rugose or bullate surface, as to be extremely difficult of representation. As the leaves advance in size, the conspicuous dark green centre nerve is gradually developed; this rises from the upper surface in the form of a prominent boss-like rounded ridge or protuberance, which is continuous with the point of union with the top of the stalk, and branches as it extends towards the point into distant alternate secondary nerves, arranged in serpentine or falcate curves on each side of the leaf-disc, and at length converging with the longitudinal nerves which extend around the margin. From the point where this main nerve starts from the top of the petiole, a pair of smaller divergent nerves, placed about two inches apart, extend towards the base of the leaf, reaching nearly to the sinus, and branching in their course so as to form side nerves, occupying the rounded basal lobes, at the extremity of which they divide into thread-like veins that traverse the entire circuit of the leaf near the edge, the extreme margin being bounded by a semi-transparent silvery cartilaginous membrane.

ALOCASIA METALLICA.

The aspect of the leaf-disc of this remarkable plant is variable, being heightened or deepened in lustre, according to the degree of light and temperature to which the plant may be exposed. As the large central and secondary nerves become prominently developed, they appear margined with a dark olive-green hue, which for a period affords a striking relief to the lighter green disc spaces between the nerves. The different phases or aspects of progressive growth may be briefly noted as follows:—(I.) The youngest leaves, when of a diameter of four to six inches, assume a dish-like form, with a comparatively even surface or disc, of an uniform rich coppery-red glossy hue. (II.) When they have reached an expansion of from nine to twelve inches, the leaves show a more elongated oblong form, with a prominent development of the nerves, and a partially elevated rugose surface between them, accompanied by higher metallic tints, whilst the under side shows a transitive red or purple-crimson colour. (III.) As the leaf increases to a diameter of from twelve to sixteen inches, it shows its most original and grandly-picturesque features, giving out its most brilliant surface-hues through the medium of softened sunlight, these hues becoming deepened by the modified influence of light and shade. The bullate or rugose surface becomes more prominent at this stage, and corresponding depressions are formed towards the nerve channels, the under surface also assuming a richer crimson colour. (IV.) When mature, the leaf-blades average from sixteen to twenty inches in length, and from twelve to sixteen inches in diameter; the entire disc resumes an almost even surface, with a greater diameter between the secondary leaf-nerves; the metallic lustre is more equally diffused over the whole, and as the splendid leaf-blades reach their greatest expansion, the successive spaces between the side nerves show a transparent surface, through which the delicate thread-like veins are traceable as they ramify from the margin towards the centre.

The reddish-tinted inflorescence which is produced in the axils of the leaf-stalks reaches from seven to ten inches in height. At about half this height, the scape enlarges into a rich purple-red tube-like spathe or flower-sheath, of an ovately-oblong or sub-cylindrical outline, two inches or more in length, the extremity of which is abruptly contracted, and thence becomes expanded into an erect, open, cucullate limb, of an acuminately-ovate outline, from three to four inches in length, and from two to three inches wide at its base.

In cultivation, this ornamental plant, like most of the allied species, loves a high temperature and humid atmosphere during its spring, summer, and autumn seasons of growth, with a somewhat diminished temperature after its most luxuriant development; but where a continued display of ornamental foliage is required, it is only requisite to carry on a vigorous growth by means of succession plants kept in a genial warm atmosphere with good exposure to light, in order to produce a permanent display of its rich metallic lustrous leaf-surface during the winter months.

As an object for competition purposes, or for picturesque effect in contrast with other stately forms of tropical vegetation in private collections, this fine new species is extremely beautiful and distinct; and its remarkable combination of crimson-red and coppery leaf-tints, justly entitles it to be regarded as one of the most wonderful plants hitherto introduced to our gardens.

Sowerby Delt.

LILIUM SPECIOSUM.

1. Atrococcineum. —— 2. Album.

ILLUSTRATED BOUQUET.

Published by E. G. He

PLATE XLV.

LILIUM SPECIOSUM.

AMONG hardy bulbous plants, the different kinds of Lily occupy the first rank for stateliness and ornamental effect. They will thrive in any dry deep good loamy garden soil, and are adapted to flower-gardens of every character, from the most princely to the most humble; and they afford such variety of form and colour as to furnish materials which are perfectly suited for a great variety of situations. The larger growing species are well fitted to adorn the shrubbery-borders and pleasure-ground enclosures, and the dwarfer ones are equally fitted for the more limited area of the gardens of villa residences. Moreover, whilst in other tribes of flowers many of the earlier introduced species have been superseded by those of more recent introduction, or by the hybrid productions of the florist, those of the present genus maintain their place in popular favour, as will appear from the fact that nearly all the oldest species are yet in demand as desirable plants for the flower-garden. *Lilium candidum*, *L. bulbiferum*, *L. Martagon*, *L. pyrenaicum*, and *L. chalcedonicum* have been known in plant collections for upwards of two hundred years, and *L. canadense*, *L. superbum*, and *L. pomponium* were in cultivation more than one hundred years ago.

The varieties of the handsome Japanese Lily, *Lilium speciosum*, forming the subject of the present plate (wherein the reference numbers are accidentally transposed), are among the most beautiful in the whole genus. The species to which they belong has for many years been very widely circulated in gardens and trade collections under the name of *Lilium lancifolium*, an error for which it is difficult to account, the latter species being known as a very distinct plant, with comparatively small white flowers.

Lilium speciosum, from which many most beautiful and richly-coloured varieties have originated, dates its introduction from Japan in 1833. The flower in its original form, as compared with the most recent seminal varieties, of which latter the present figures afford fine illustrations, is smaller in size, less globular in outline and much inferior in colour. It is during the last few years that many seedling kinds have been originated both in continental and home gardens, and some of the most distinct of these are enumerated hereafter among the kinds recommended for pot-culture. Our plate represents :—

Fig. 1. L. SPECIOSUM ATRO-COCCINEUM; an improved variety with richly-coloured flowers.

Fig. 2. L. SPECIOSUM ALBUM; one of the most distinct and useful of the older kinds.

The principal variety in the annexed illustration, *L. speciosum atro-coccineum*, which was produced in a casual batch of seedlings, may be regarded as one of the most brilliant flowered plants in its section. The plant is furnished with half-drooping leaves, inclining to a broadly oblong-lanceolate shape, with undulated or wavy margins. The flowers, when fully expanded, have the broad petal-like segments of the perianth so far recurved from the base as to assume a sub-globular outline, while in colour they are deeply flushed with crimson over two-thirds of their

surface, the still darker mid-nerve and numerous rich spots imparting a brilliant and picturesque effect; the prominent gem-like projections which occur towards the base of each segment being tipped with crimson, add very much to the gorgeous beauty of the flowers.

The second variety represented in the plate is the well-known *L. speciosum album*, which will be found noticed along with the allied kinds.

Though this popular family of bulbs may be generally regarded as hardy, yet for cultural purposes it may be judiciously divided into two main groups or sections, which are these:—1. The perfectly hardy kinds, suited for the flower-garden; 2. The half-hardy and other kinds, adapted for pot-culture for the decoration of the conservatory or greenhouse, the pots being protected in cold pits or frames throughout the winter months. In adopting these provisional sections, it should nevertheless be remembered that the majority of those kinds recommended for pot-culture have also been proved hardy, when planted rather deeply in situations where the subsoil is dry, or even in less favoured spots, with the aid of protection in winter, by means of a good surface stratum of dried tan, wood ashes, or leaf-mould, allowed to remain until towards the end of March. The principal exceptions, consisting of species requiring frame or cool greenhouse protection until April or May, are *L. japonicum*, *L. colchicum*, *L. giganteum*, *L. Thomsonianum*, and *L. Wallichianum*.

When Liliums are cultivated in pots, they should, after the summer bloom is over, have partial rest by withholding moisture, except what they casually receive from occasional showers. The same object may be secured by laying down the pots sideways until October or November, when the species are generally disrooted and re-potted in pots proportionate to their vigour and size. With the exception of those requiring peat or heath-mould, they succeed well in three parts loam and one of peat, blended with one-fourth more of sand and leaf-mould. After potting, they may be preserved in cold pits or frames, only giving very occasional waterings in mild weather, until March: from which time, as the leaf-germs appear above the surface, daily or alternate waterings may be given, and, as the growth progresses, they may be duly exposed in all mild weather. As the spring advances, and warm weather sets in, the plants may be removed from the pits or frames, and half-plunged in dry tan or leaf-mould on the surface of a dry border, during the summer months. An occasional watering with weak liquid manure-water will be beneficial, and as the plants develope their flower-buds to maturity, they may be successively moved into the conservatory or greenhouse.

§ I.—HARDY SPECIES FOR THE FLOWER BORDERS.

L. atrosanguineum. This is a handsome dwarf species with large rich orange-red cup-shaped blossoms, casually blotched with dark crimson. A race of beautiful dwarf varieties has been originated between this species and *L. bulbiferum;* the new forms are equally dwarf and showy with the former, having bright flame-coloured red and orange cup-shaped blossoms, occasionally stained or spotted with crimson. Among them the kinds known by the following names are conspicuous for their attractive colours:—*Duke of Wellington*, *Rubens*, *Titian*, *Victoria*, *Vulcan*, *Sir Robert Peel*, and *Fulgens*.

L. aurantium. This is one of the commonest forms of the Orange Lily, forming a robust erect species, from four to five or more feet in height, producing terminal umbellate clusters of bright orange-yellow cup-shaped blossoms, throughout the summer months, and well adapted for large shrubberies and pleasure-grounds.

L. bulbiferum umbellatum. A handsome variety of the Bulb-bearing Lily, producing large terminal clusters of rich orange-red vase or cup-like blossoms. The principal allied varieties are *L. umbellatum fulgidum*, with brilliant orange-tinted flowers; and *L. umbellatum nanum* and *L. umbellatum maculatum*, two dwarf-growing kinds, with richly shaded and spotted orange blossoms.

L. canadense. An ornamental species, growing from four to six feet in height, having a similar habit to *L. superbum*, but less robust, with terminal thyrse-like panicles of light orange-yellow flowers with recurved petal-lobes. The variety *L. canadense rubrum* is recognised by its richer coloured blossoms, with a similar habit of growth. Both kinds require peat soil for their successful culture.

L. candidum. This is the well-known and beautiful White Lily of gardens, a tall robust species, growing from five to six feet in height, well adapted for planting in shrubbery borders or arboretums, and also worth a place in all flower-gardens of moderate extent, its large and conspicuous recurved blossoms being very effective and

delightfully fragrant. Its principal varieties are *L. candidum striatum*, with purple-streaked blossoms; *L. candidum plenum*, with double flowers; *L. candidum argentum*, and *L. candidum aureum*: the two last very ornamental kinds, on account of their lively variegated leaves, which by their continuous growth are adapted for ornamental groups throughout the winter months.

L. Catesbæi. A very pretty dwarf species from nine to twelve inches in height, of slender erect growth, the blossoms of an expanded vase or cup-like outline, which, at their maturity, show rather decurved and wavy-margined flower-lobes of a bright orange-scarlet colour, with a yellow base, the latter part being marked with rich crimson spots. It requires peat soil for its culture.

L. chalcedonicum. The beautiful Scarlet Martagon Lily, from Constantinople, and one of the finest old species yet known; its terminal racemes of bright scarlet turban-like blossoms on flower-stems from four to six feet in height, adapt it for conspicuous positions in large gardens, or for smaller groups in those of moderate size.

L. excelsum. A distinct species, attaining from three to five feet in height, with large conspicuous rich buff-yellow somewhat turban-shaped blossoms, which give out a delicate odour. It is also called *L. Isabellinum.*

L. eximium. This is a very fine kind, with a habit of growth after the style of *L. longiflorum*, but more robust as well as taller, and differing also in frequently producing two and occasionally three beautiful white trumpet-shaped blossoms on a stem; the flowers are, moreover, longer and wider in the tube or neck, and expand to a larger funnel-shaped revolute limb. Being less plentiful than *L. longiflorum*, it is not unfrequently substituted for it.

L. longiflorum. A beautiful dwarf species, with large snow-white trumpet-shaped fragrant blossoms, well adapted for masses or detached groups. Its varieties *L. longiflorum* "*Takesima*" and *L. longiflorum* "*Siu Kiu*," are of comparatively recent introduction, and of rather taller but similar habit, and equally hardy.

L. Martagon. This species, the Turk's Cap Lily, forms a neat plant with terminal open trusses of purplish-red recurved blossoms, spotted with brown crimson. The varieties *L. Martagon plenum* and *L. Martagon album* are also neat plants for miscellaneous collections.

L. monadelphum. A very neat growing plant from three to four feet in height, with light yellow depressed revolute-lobed blossoms, thinly speckled with oblong brown specks. In habit it is easily confounded with *L. pomponium*, but differs from that by its blunter and shorter leaves, and by its depressed revolute-tipped differently coloured flower-lobes, which in *L. pomponium* are also globosely recurved.

L. philadelphicum. This species may be distinguished by its erect robust growth, from one and a half to two feet in height, with single or twin bell-shaped orange-scarlet blossoms, prettily marked with crimson spots on the yellow petal claws. A spurious plant, apparently an inferior kind of *L. bulbiferum*, is often substituted for this ornamental species. The true kind thrives only in peat soil.

L. pomponium. A neat species, attaining from three to five feet in height, with terminal open racemes of drooping recurved scarlet blossoms.

L. sinicum. One of the rarest dwarf-growing species, of neat slender growth, having narrow lanceolate leaves and terminal solitary open vase-like scarlet blossoms.

L. superbum. A stately growing species from five to seven feet in height, with terminal pyramidate racemes of rich orange-coloured blossoms, marked with black spots. It is also called *L. pyramidale.* This requires peat soil for its culture.

L. tigrinum. One of the most common and most beautiful of the hardy late summer-flowering species, growing from three to four feet in height, blooming most profusely in good common garden soils. Its large and brilliant light orange-coloured blossoms are very effective, from the rich contrast afforded by their black spots upon the lighter ground colour. The blossoms have their segments recurved like those of the Turk's Cap Lily.

§ II.—HALF-HARDY SPECIES FOR POT CULTURE.

L. colchicum. This fine species attains from three to four feet in height, and is otherwise distinguished by its large and elegant partially-depressed turban-shaped blossoms of a rich lemon-yellow colour, picturesquely marked with detached black spots. It is more correctly called *L. Szovitzianum.*

L. giganteum. This is the most stately and remarkable species in the genus, forming a robust habited plant, with a stout polished shaft-like stem of erect growth, from five to eight feet in height, clothed below with large handsome dark-green, heart-shaped leaves, and supporting a terminal racemose spike of large, drooping, trumpet-shaped white flowers, marked with rich crimson bars. Though it is reported hardy in some favoured situations, it is nevertheless certain that nearly the whole of the cultivated specimens have been produced by cool house-culture, and as a very vigorous growth is essential to the production of its bloom, it will be most judiciously regarded as a half-hardy plant for conservatory and greenhouse decoration.

L. giganteum cordifolium. Apparently a distinct variety of the preceding species, blooming a fortnight or more later in succession, and differing from it in the bulb-scales being more closely imbricated and blunt at their extremities: having also a reddish tint, rather than dark chocolate-brown. Its leaf-blade is more strictly heart-shaped, and of a richer glaucous-green, flushed with a flesh-coloured hue. As to its other features, it appears equally vigorous in habit, and similar in bloom.

L. japonicum. A handsome species, with flower-stems from one and a half to two feet in height, having large terminal fragrant, white, trumpet-shaped blossoms, suffused with purple on the mid-ribs of the lobes. This fine species is much like *L. eximium* and *L. longiflorum* in habit of growth, but is considerably taller, and its larger blossoms are more inclined to a funnel-shaped outline. Its continued scarcity implies a slowly productive root-growth, and the demand for it has led in many instances to the substitution of *L. eximium* in its stead. It is sometimes called *L. Brownii.*

L. speciosum. This species (the *L. lancifolium* of gardens), with its varieties, ranks among the most beautiful of the Lily tribe for pot-culture, being both stately and attractive. The rich glossy-green foliage and wide panicles of large turban-shaped richly-fragrant blossoms, are unsurpassed for effect. The principal varieties are *L. speciosum album,* with large pure white blossoms; *L. speciosum punctatum,* white, flushed with light pink; *L. speciosum rubrum,* white, flushed with violet-rose and spotted with crimson; *L. speciosum rubrum cruentum,* or *superbum,* white, richly flushed with rosy-crimson, and set with darker-crimson spots on the surface; *L. speciosum Harrisoni,* a large and very finely-formed white flower, flushed and spotted with rosy-crimson, each blossom forming a sub-globular outline, the habit of growth being comparatively dwarf; *L. speciosum grandiflorum,* a splendid variety, with white flowers richly flushed with crimson, and larger than any other in the section; *L. corymbiflorum album,* and *L. corymbiflorum roseum,* good dwarf varieties, distinguished by their wide corymb-like panicles of bloom, on flower scapes of two to three feet in height.

L. Thomsonianum. A very neat early summer-flowering species, from twelve to sixteen inches in height, with narrow linear acuminate leaves, and a terminal spike-like raceme of light rose-coloured half-drooping bell-shaped flowers, two and a half inches in length. It is sometimes called *L. roseum.*

L. Thunbergianum. This beautiful dwarf species, sometimes called *L. venustum,* attains one and a half to two feet in height, with ovately-lanceolate leaves, and produces from one to three large spreading bright orange, salver-shaped blossoms.

L. Thunbergianum grandiflorum. A very ornamental dwarf variety, having flower-stems from one to two feet in height, with ovately-formed leaves, and large dark orange-red spreading cup or salver-shaped blossoms, with scattered black spots towards the centre.

L. Wallichianum. This desirable species, which is distinguished by its slender glossy green flower-stems, attains from three to five feet in height, with long lanceolate leaves, and from two to three large white trumpet-shaped creamy-white flowers, of a similar size and form to those of the well-known *L. longiflorum.*

J. Andrews, Delt.

RHODODENDRON AUREUM MAGNIFLORUM.

Printed by C. Chabot.

ILLUSTRATED BOUQUET.

Published by E. G. Henderson and Son.

PLATE XLVI.

RHODODENDRON AUREUM MAGNIFLORUM.

AMONGST the numerous forms of Rhododendron of ornamental character, which are specially adapted for decorative effect in the conservatory and greenhouse, that section of hybrid varieties which was originally obtained by the late Mr. Smith, of Norbiton, Surrey, by means of cross impregnation with the golden-flowered deciduous *Azalea sinensis,* is noticeable as containing many valuable and beautiful forms, which not only form effective contrasts with plants of a similar race, but also impart an original and picturesque feature to miscellaneous collections of flowering plants during the spring and early summer months.

Splendid as are many of the English and continental hybrid varieties in their array of crimson, rose, and scarlet hues, yet previous to the origination of the *Aureum* group or section, which the accompanying plate illustrates, there was a deficiency in the complement of colours, occasioned by the absence of the rich and pleasing yellow tints which constitute the great beauty of these kinds, and which vary from rich amber and golden yellow to delicate buff, primrose, and pure white, each picturesquely marked with orange spots. In some varieties, these shades of colour are at the same time suffused with equally delicate hues of coppery rose and pink. The development of such beautiful and attractive colours will always secure for these varieties a prominent place in collections of the Rhododendron tribe which have any pretension to completeness. The habit of growth is generally robust, and more ligneous or hard-wooded than that of the hybrid hardy varieties. The foliage is sub-evergreen, partaking, in an intermediate degree, of the character of the deciduous Azalea and the evergreen Rhododendron. The varieties all produce very large trusses of bloom, and become fine objects under good management.

The variety now figured is one of the finest and most distinct in its section, especially remarkable for its large flower heads, and for the size and beautiful primrose colour of its flowers, which on the upper segments are spotted with rich orange, and towards the margin are suffused with pink.

The mode of culture proper for these yellow-flowered varieties is similar to that of other greenhouse and conservatory kinds, and they require but the genial temperature of a moderately-warmed greenhouse to mature their blossoms. The after treatment may be similar to that given to Camellias, namely, an increase of heat to encourage growth, and after this is completed, the plants to be gradually exposed, during the summer months, with other Rhododendrons, Azaleas, or Camellias.

The following is an enumeration of the most commendable kinds of this race for general cultivation :—

Aureum punctatum : rich primrose, finely spotted with orange.
Aureum superbum : fine yellow, with deep orange spots.
Album flavum : delicate blush white, with distinct orange yellow spots.
Bianca : pure white, with yellow spots.
Burlingtonii : bright yellow, large truss.
Carneum versicolor : yellow, with pink edging, finely spotted.
Congestum aureum : good yellow, with compact truss.
Cupreum : rich coppery orange, suffused with pink.
Delicatum aureum : blush pink, with large blotch of orange spots.
Gloriosum : white, with yellow spotting.
Jenkinsii : lemon colour, tinged with pink, large truss.
Macranthum flavum : shaded pink, with buff yellow centre.
Ornatum : sulphur yellow, with orange spots, large truss.
Primulinum formosum : clear primrose yellow, with orange spots.
Primulinum elegans : light primrose, with pale upper spots, compact truss.

THE HEATING OF PLANT-HOUSES BY HOT-WATER.

WITH PLAN OF THE PLANT-HOUSES IN MESSRS. E. G. HENDERSON & SON'S NURSERY.

The past winter, with its almost unprecedented severity and prolonged intensity of cold, has been a sufficient test of the efficacy of the various systems of heating garden structures by the circulation of hot-water. The very extensive ranges of plant-houses and pits in the Wellington Nursery, of which a lithographed plan is given, have been heated with so much success, that it seems a duty to bring the apparatus by which this has been effected into public notice, as the most perfect adaptation of hot-water circulation to the warming of hothouses and other plant structures yet known. Allowing that the generality of hot-water boilers for horticultural purposes are sufficiently satisfactory for a circulation of moderate extent, and as applied to small or medium-sized structures, when properly erected and worked (which too often is not the case), a very important question as regards the economy of labour and fuel, when extensive ranges of structures have to be warmed, still remains; and certainly that mode or principle of heating which, in proportion to the increased extent of glass structures, dispenses, to the greatest extent, with an augmented number of fires, and the increased labour consequent thereon, has a strong *primâ facie* claim to be adopted in preference. It is no unusual occurrence, even in the present day, that each separate plant-house has its independent apparatus for heating; and those who have had experience in the items of labour and consumption of fuel, with the inseparable irregularities of temperature which are inevitable in all cases where the boilers require oft repeated supplies of fuel, involving excess on the one hand and deficiency on the other, can bear testimony that such arrangements are costly and yet not always efficient.

After many years' experience in heating plant-houses by detached or separate fires, Messrs. E. G. Henderson and Son very confidently bear testimony to the thorough efficiency of the very powerful apparatus erected at the Wellington Nursery by Messrs. John Weeks & Co., one of whose improved upright tubular boilers has for a series of years up to the present period, effectively heated thirty-two plant-houses, pits, &c., requiring nearly two miles, or about 10,000 feet of piping, without a single accident or replacement. A considerable portion of the piping is laid at a distance from the propelling power, yet the remotest parts are as efficiently heated as those nearest the boiler; and this almost incredible amount of circulation is going on nearly the whole year round. The boiler forms not only the foundation stove, but also the entire basis of the apparatus. It consists of sixty erect tubular pipes, in triple tiers, each about five feet in length, connected so as to form one entire casting, and exposing to the immediate action of the fire about 400 feet of surface. This apparatus may be regarded as the most powerful of any yet practically proved in garden structures, being of superior yet simple adjustment, economical as regards fuel and labour, easily managed, particularly clean, and most equable in the distribution of heat. The correctness of the principle upon which it is based, must be admitted; and being as applicable to the heating of small structures as to large ones, its importance can hardly be over-rated.

By the old system, even in its most improved form, the same extent of glass surface as that which is heated by this one apparatus in the Wellington Nursery, would have required twenty or more separate fires. Previous to the adoption of the boiler now described, a dozen or more of various forms had been tried, and all were ultimately relinquished in favour of the present, which, in addition to its other recommendations, is self-feeding, and thus still further economising of labour. Except in the severest weather, it may be left in the evening self-fed until morning, for the full complement of time during which a circulation of heat is required, and without the slightest risk of the fire becoming extinct.

The distribution of heat to the different departments requiring various degrees of temperature, is admirably regulated by means of brass valves, which contrivances, if not originated by Messrs. Weeks & Co., are at least most efficiently adapted by them to hot-water apparatuses applied to horticultural purposes.

BEN: GEORGE LITH. 47, HATTON GARDEN, LONDON E.C.

MESSRS E. G. HENDERSON & SON'S

HORTICULTURAL ESTABLISHMENT, WELLINGTON ROAD, ST JOHN'S WOOD, LONDON.

THE FRONT FLOWER-BEDS REPRESENTING THE EFFECT PRODUCED IN THE MONTHS OF APRIL AND MAY BY THE MAGNIFICENT COLLECTION AND VARIETY IN COLOUR OF THE EARLY FLOWERING BEDDING-TULIPS.

ORNAMENTAL BULBOUS AND TUBEROUS PLANTS.

EARLY BEDDING TULIPS.

FOR the decoration of the Flower-garden at the earliest period of the Floral season there is no other class of plants at all comparable with the splendid varieties of Early-flowering Bedding Tulips which are here introduced to the notice of amateur cultivators of flowers. In order to show the remarkable adaptation of the class of plants now adverted to for the purpose we have just indicated, it may be requisite to point out the most prominent differences between the dwarf early-flowering varieties of this family and the class of ordinary summer-flowering sorts, known as florists' varieties, which differences consist in two obvious features:—

1. The early Tulips are dwarf, whilst the florists' varieties are tall.

2. The early varieties bloom during the earliest period of spring, whilst those of the florists' section only make a display in the earlier summer months, and consequently interfere with a due succession of summer flowers.

It is upon these very important distinctions that the chief superiority of the Early-flowering Tulips over the Late ones for flower-garden ornamentation rests; the blooming period of the former admitting of the bulbs being taken up and harvested in time to make room for the summer bedding plants, by the period that the latter are only commencing to mature their bloom. Another important distinction, however, between the early and late Tulips, and that in favour of the former as regards their decorative capabilities, consists in the far more brilliant and intense self-colours which occur in many of the more beautiful of the varieties, whilst, on the other hand, the variegated character of the taller late kinds with their bars and flakes of colour, renders them less suitable for the decoration of an early spring flower-garden, and also less effective.

Previous to the introduction of these early flowering bulbs, the great extent of ground devoted to the summer and autumn display of miscellaneous bedding plants was left comparatively blank and solitary during the spring months, or that period which intervenes between the blossoming of the Snowdrop, Aconite, and Crocus, and the more advanced season of planting the permanent summer beds and groups. To fill up this void, Messrs. E. G. Henderson & Son are induced to direct the special attention of the lovers of flowers to their magnificent collection of Early Spring-flowering Dwarf Tulips which, during their bloom in the spring of 1860, attracted on several occasions the special notice of Her Majesty the Queen; and which consists of nearly four hundred varieties selected from the principal collections in Europe. From the extensive assortment they have cultivated for several years, Messrs. Henderson & Son have been enabled to classify and arrange the varieties into sections adapted to the extent and various arrangements of design and colour required by individual taste or garden outline,—either for colossal groups or ribbon-like lines, as pourtrayed in the front ground beds in the annexed plate, which represents the Wellington Nursery (on a reduced scale) with the collection of early Tulips as they are annually to be seen in bloom in that establishment. The special attention paid to this collection during several years' growth, has offered unequalled advantages for obtaining accurate descriptive notes of the distinctive features of the varieties in the various classes

or sections, according as the varied colours are adapted for harmony or contrast or suited for successional bloom. The diversity of colour and tint far exceeds the limited sections found in the generality of trade circulars, in few of which the most elegant and rare varieties find a record.

In reviewing the entire genus, including the original species of which some are extremely interesting, and the very numerous varieties of hybrid and seminal production, it is no disparagement to the almost endless variety and the beauty of other flowers, to affirm that no other set of hardy bulbs at all equal in neatness of habit, or splendour of effect, that now referred to; and when its hardiness of growth, its adaptation to common soils, its easy preservation, and its perennial duration, added to the exquisite petal tints of the chastely modelled sculpture-like flower-cups, are also considered, its superiority over other classes of bulbs will be fully admitted. The massive proportions and relative depth and breadth of colour in the blossoms, which vary from the strongest and most opposite contrasts to the most softly blended tints, afford such variety of character as no verbal description can adequately express. So that whether seen in the grandeur of their effect in masses, or in the beauty of their appearance when formed into avenue-lines, or ribbon-like rays, or transverse rows on beds, borders, or front verges, the importance of this section of Tulips for flower-garden purposes becomes fully evident.

The absence of all difficulty in the culture of these bulbs, and the fact of their requiring no protection whatever after planting, renders them moreover indispensable in the floral arrangements of all who take interest in flower-garden decoration, in proportion to the space allotted for bedding or border plants, which class they are admirably adapted to precede, in consequence of their blooming during the early period already adverted to.

Amongst them will be found the most dwarf and brilliant coloured varieties for the small parterres of villa flower-gardens, and also a second numerous section including varieties of a medium or somewhat taller growth, adapted for more distant effect in larger groups or beds. Each of these principal divisions includes alike the rich self-coloured, and the parti-coloured flowers. The former series comprises clear and beautiful scarlets, bronze-scarlets, reds, crimsons, shaded-roses, whites, and yellows, each in their distinctive shades, the flower stems being from six to eight inches in height; and the same brilliant tints are repeated in the medium or taller growing kinds. The latter or parti-coloured series also includes numerous varieties equally dwarf, as well as uniform in height and season of bloom with the self-coloured sorts; while the variations in colour, embrace snow-white grounds variously striped, feathered, or barred with rich violet, cerise or rose-crimson, and violet-purple; also golden-yellow and buff grounds, flaked and feathered with rich bronze-red and crimson.

The Early Double-flowering section, embracing the well-known kinds employed for early forcing, also includes a very beautiful though limited variety, vieing with the single flowers in brilliancy of colour, but surpassing them in size. These, when planted in large beds or groups, have an imposing appearance when seen in contrast with some of the more diversified colours in the single section. Amongst the double-flowered varieties, those known as *Tournesol*, *Rex Rubrorum*, *Regina Rubrorum*, *Pæony-rose*, *Imperator Rubrorum*, *Helianthus*, and *Couronne Pourpre*, are examples of great beauty, and remarkable for the effect they are adapted to produce.

ORNAMENTAL BULBOUS AND TUBEROUS PLANTS,

WITH NOTICES OF POPULAR SPECIES IN EACH GENUS, AND THEIR TREATMENT.

ACHIMENES.—A very ornamental genus of hothouse plants, adapted for summer in-door decoration. They require rich sandy loam, peat, and leaf-mould, and after the summer's growth to be allowed gradually to go to rest, the tubers being kept in the pots of dry soil until stimulated into growth in spring. The scaly tubers are to be planted three, four, or more in each pot, and placed upon a hot-bed or gentle surface-heat; and when established in growth, the plants may be removed into the stove or warm conservatory. After the bloom is passed away they are to be stored away with other dormant hothouse bulbs. Amongst the most desirable kinds of the large-flowered group are *Ambroise Verschaffelt, Belmontiensis, Dentoniana, Estelle, Longiflora major, Margarettæ, Sir Treherne Thomas;* while of the small-flowered section, resembling the old *A. coccinea*, the most desirable are *Dazzle, Dr. Buenzod, Gem, Meteor*, and *Rosea magnifica.* Of a distinct habit, but very ornamental in character, is the variety called *Georgiana discolor.* There are many other beautiful varieties in both sections (see also **Tydæa**).

ALLIUM.—A genus of hardy summer-flowering bulbs, requiring common garden soil; they may be planted throughout the autumn months. *A. azureum, A. fragrans, A. Moly, A. roseum, A. rubellum*, and *A. triquetrum* are some of the best in the genus.

ALSTRÖMERIA.—A fine genus of hardy, or half-hardy fleshy-rooted herbaceous plants, adapted for open air culture in dry borders, or to be planted in more exposed spots if the surface is protected during winter until March by a thick stratum of dry tan, sawdust, or wood ashes. They thrive luxuriantly in very sandy loam and peat. The smaller species are also well adapted for pot-culture in the cool greenhouse or conservatory. The most attractive and ornamental kinds for the open borders are *A. aurea, A. chilensis, A. Errembaultii, A. hæmantha, A. psittacina, A. pulchella* and *A. Simsii;* while the following additional select kinds are more adapted for pot-culture; viz. *A. Hookeriana, A. Pelegrina* and *Pelegrina alba*, and *A. tricolor.* The foregoing species may all be transplanted during the autumn season. Those grown in pots may be preserved in a cold pit or frame with protection from frost until spring, and may either be bloomed in the same position or removed to the greenhouse.

AMARYLLIS.—A very ornamental group of warm greenhouse and hothouse bulbs, for conservatory and drawing-room decoration: including also some hardy kinds. The two former sections comprise many beautiful species and hybrids, with large clusters of lily-like, funnel or bell-shaped blossoms, from four to six inches in diameter, self-coloured, of very rich shades of crimson, scarlet, red, and orange-tinted ground colours, which are often variegated with picturesque white central bars, forming a star or ray, whence they are sometimes called Knight's-Star (see **Hippeastrum**). The general management of these plants consists in the bulbs being kept dry over winter, and re-potted in early spring in rich sandy loam with small proportions of peat and leaf-mould, gradually excited to growth in a warm forcing pit or house, and towards their maturity removed to a cooler atmosphere, such as a conservatory. A succession of bloom may be kept up nearly the whole year by varying the seasons of growth and rest by means of succession bulbs, and with the aid of artificial heat. Amongst the more ornamental greenhouse autumn-flowering species, are the Belladonna Lily (see **Belladonna**), and the beautiful Guernsey Lily (see **Nerine**), which are imported annually about September, furnished with flower scapes for immediate bloom in the greenhouse, conservatory, and drawing-room. These species, in connection with the equally beautiful *Amaryllis purpurea* (see **Vallota**), are amongst the most ornamental flowers known during the months of October and November. The very rich crimson blossoms of *Amaryllis formosissima*, the Jacobea Lily (see **Sprekelia**), are produced from early spring until June. The hardy *Amaryllis lutea* (see **Sternbergia**), is a pretty dwarf autumn-flowering species.

AMORPHOPHALLUS.—A genus of ornamental-leaved warm greenhouse and stove tuberous-rooted herbaceous plants, with robust erect polished columnar leaf-stalks of dark green and flesh-coloured ground tints, singularly speckled with gray flakes, and terminating in remarkably large terminal flat compound leaf-expansions, twelve to sixteen inches in width, spreading out into triple divisions of unequal pinnatifid lobes. *A. bulbiferus* and *A. campanulatus* are the principal species, the former perhaps the most desirable, both forming vigorous growth in three parts loam and one of peat. The tubers are quite dormant during winter, and produce fresh leaf-shoots in spring.

ANEMONE.—This genus consists of beautiful dwarf hardy firm-fleshed tuberous-rooted plants, adapted for flower-garden decoration, either in beds or detached groups, and producing a succession of bloom from March until July. The Poppy Anemone (*A. coronaria*), is the parent of the fine garden varieties. Though similar in habit to the Ranunculus, this is readily known by its more elegantly-lobed foliage, and its larger blossoms, the double forms having outer guard petals like those of a fine Hollyhock. The varieties include the most brilliant self-colours, as scarlet, crimson, blue, and rose, as well as parti-coloured stripes, and each colour varies with single or double flowers. They succeed well in good rich garden soil. If planted in October or November, they will produce a gay effect in the early spring months, and a second group planted in February will bloom in April and May. The tubers are to be taken up as soon as the leaf begins to fade or turn yellow, and are to be preserved perfectly dry till replanted. Amongst the distinct ornamental species having tuberous root-stocks, are *A. apennina* and *apennina alba, A. nemorosa, A. palmata*, and *A. ranunculoides;* the double form of *A. nemorosa* (the double Wood-Anemone) is very pretty. Of other ornamental kinds, not strictly tuberous-rooted, there are *A. alpina, A. patens, A. Nuttalliana, A. japonica*, and *A. Hudsoniana.*

ORNAMENTAL BULBOUS AND TUBEROUS PLANTS.

ANISANTHUS.—A genus of bulbs closely allied to *Antholyza*. *A. splendens* is a plant of slender, erect, Gladiolus-like habit, producing a scape of brilliant scarlet flowers in April or May. It is to be planted in October or November for pot-culture, with protection from frost, or planted six or eight inches deep in a dry south border in the open ground, with Ixias, &c., and with similar surface-protection till spring. It succeeds in one-half loam, and the rest sandy peat and leaf-mould.

ANOMATHECA.—A very pretty dwarf half-hardy bulb. The species, *A. cruenta*, has Ixia-like foliage and numerous crimson-red blossoms, and flowers freely during the summer months in the flower-beds or margins. It requires similar treatment to Ixias, if grown in pots; or else to be reserved in a dried condition till spring for the open ground, and then planted in good garden soil.

ANTHOLYZA.—A showy genus of hardy and half-hardy bulbs of Gladiolus-like habit, bearing spike-formed racemes of orange-red and scarlet-tubed funnel-shaped blossoms in the late summer months. It requires similar treatment to *Anisanthus*, but may be planted throughout the autumn months. *A. æthiopica*, *A. coccinea*, and *A. fulgens*, are effective plants in the flower-borders.

APIOS.—Of this genus, *A. tuberosa* is a neat, tuberous-rooted, climbing, herbaceous plant, with rosy-tinted papilionaceous blossoms; it is adapted for flower-garden walls or trellis-work. The tubers are to be planted in autumn, or early spring, in good loamy soil.

ARUM.—A genus of curious and interesting tuberous-rooted plants, including hardy and greenhouse species. They have arrow-shaped leaves, and produce ornamental flower spathes or envelopes enclosing the erect spike or floral column. These spathes generally constitute the ornamental feature of the species, and are mostly of an elongated conical or cup-shaped form, occasionally running out into a long strap or tail-like extremity, varying from six to twelve or fifteen inches in length; some have the ground colour picturesquely marked with rich reddish brown or crimson, others with a deep livid purplish crimson. Some of the species have green leaf-sheaths, and others, as *A. Dracunculus*, the Dragon plant, have the foot-stalks ornamented with brown speckles. The genera *Sauromatum* and *Amorphophallus* were formerly included in this family. Amongst the hardy species, *A. Dracunculus*, *A. Dracontium*, *A. italicum*, and *A. triphyllum*, are distinct and interesting; and of the greenhouse species, *A. Arisarum*, *A. cornutum*, and *A. crinitum*, are singularly ornamental. The species may be planted in autumn, and kept dormant until spring.

BABIANA.—A very pretty family of small half-hardy or frame bulbs, suitable for potting in autumn. Their growth resembles that of a dwarf *Tigridia*, and they are furnished with dark green plaited leaves, and clusters of oblong-lobed salver-like blossoms. The species require the same treatment and soil as Ixias, and to give good effect three four or more bulbs should be planted in each pot. The most generally cultivated kinds, all of them ornamental in character, are *B. angustifolia*, *B. coccinea*, *B. corymbosa*, *B. plicata*, *B. rubrocyanea*, *B. villosa*, and *B. villosa kermesina*.

BEGONIA.—The tuber-forming species of this very extensive genus are but few, and require greenhouse temperature; also for their growth good friable sandy loam and leaf-mould. *B. discolor*, also called *B. Evansiana*, is well known by its large picturesque leaves, with a reddish under-surface. *B. diversifolia* is a showy summer and autumn flowering plant, succeeding in the flower-garden during warm seasons. The tubers require to be kept at rest after their growth, secure from frost, and again excited by gentle heat in spring.

BELLADONNA.—The *Belladonna purpurascens* is the well-known Belladonna Lily. This beautiful bulb, which is annually imported for immediate bloom in the autumn months, produces its large and beautiful white funnel-shaped blossoms, richly flushed with rose, in October and November; and the low rate at which it is sold admits of its purchase (in connection with the beautiful Guernsey Lily) in moderate quantities for conservatory and greenhouse decoration. After the flowering period of the Belladonna Lily is past, the bulbs should be retained in the greenhouse, or in a warm pit or frame, to encourage a further growth for a few weeks, and they may then be gradually rested by abstaining from further waterings; they may remain in dry soil until the ensuing spring, and then be planted six to nine inches deep in an open air wall-border, in the same way as *Crinum capense*.

BOBARTIA.—*B. aurantiaca* is a neat summer-flowering plant, producing successive star-like orange-coloured blossoms. It requires similar treatment and soil to those given to *Ixia*.

BOMAREA.—A group of the genus *Alströmeria*, differing most obviously in their twining stems. The several species succeed well when planted either in the front inward ground-border of a cool greenhouse, or in the front dry subsoil of an outward south border against a wall, where, if planted six to eight inches in depth, and afforded surface-protection in winter, the greenhouse species will expand their rich drooping lobed blossoms in summer and autumn. *B. acutifolia* and *B. oculata* are handsome greenhouse or half-hardy kinds. Two parts sandy loam and one of peat will suit the species; and after the season's growth, a dormant state is to be kept up until spring.

BRAVOA.—A genus of pretty greenhouse bulbs. *B. geminiflora* is a neat plant with rich carmine-red drooping tube-like flowers, produced in the summer months. It requires similar treatment both as to soil and temperature to that given to *Ixia*, and may be planted throughout the autumn months.

BRODIÆA.—A family of ornamental summer-flowering hardy bulbs for permanent open ground culture in good garden soil, requiring to be planted in autumn. *B. congesta* and *B. grandiflora* are commendable species; the latter thrives well in peat soil, though this is not essential to its growth.

BULBOCODIUM.—*B. vernum* is a pretty dwarf early spring-blooming bulb, with large purplish-lilac Crocus-like flowers, requiring ordinary good garden soil. It is adapted for the open borders, or for pot-culture in cold pits or frames, along with Crocus, &c. It should be planted in autumn, and allowed slow root-growth until spring.

ORNAMENTAL BULBOUS AND TUBEROUS PLANTS.

CALADIUM.—The most picturesque genus of hothouse tuberous plants yet known, and adapted, when in mature growth, for the summer and autumn decoration of warm conservatories. They have large or medium-sized rounded or acutely lobed, arrow-shaped, oblong, or heart-shaped leaves, from six to twelve or sixteen inches in diameter, with variously ornamented coloured surfaces: one section has dark green leaf-grounds, and brilliant crimson-red centres, varying in others to red and white, promiscuously blended or speckled; a second section shows a vivid green leaf-tint, beautifully spotted and marbled with snow-white; while a third is spotted with both red and white on a rich green ground. They require three parts rich loam, and one of mixed sandy peat and leaf-mould. In the absence of bottom-heat, the tubers are allowed to rest from growth through the winter, and gradually excited in early spring; but where root-temperature is available, a continued succession of the splendid leaf-tints are produced throughout the winter months by means of a continuous growth. Amongst the species, *C. argryites*, *C. Belleymeri*, *C. bicolor splendens*, *C. Chantini*, *C. picturatum*, *C. pictum*, and *C. violaceum*, are highly commendable; also *C. Houlletii*, *C. Troubetzkoi*, *C. Neumanni*, and *C. Wightii*.

CALLIPRORA.—A genus of summer-flowering hardy Californian bulbs. *C. lutea* is of a neat slender growth, with a cluster of pretty drooping starry-lobed blossoms. When planted out, it thrives well in a peat bed or border; or for pot-culture it requires three parts friable sandy loam and one of peat, and merely encouraging root-growth in a cold pit, with Ixias, &c.

CALOCHORTUS.—A genus of neat and singularly elegant, slender, half-hardy bulbs. *C. luteus* has yellow, broad, three-petaled flowers, having a green centre, surmounted with banded broken reddish lines. For pot-culture plant in the autumn, using sandy loam and peat, and keep the bulbs nearly dormant and free from moisture during winter, in a cold pit or frame. If grown in the open air, plant early in spring upon a shady peat border; and after the bloom, the bulbs should be taken up and dried, until symptoms of growth appear; then pot as above, in a cool situation, and transfer to the peat border in April or May.

CAMASSIA.—A handsome summer-flowering hardy bulb, allied to the beautiful vernal Squill. The species, *C. esculenta*, has a flower scape considerably taller than a garden Hyacinth, bearing a beautiful oblong attenuate spike of starry blue-purple blossoms. It may be planted throughout the autumn months in the flower-borders.

CANARINA.—*C. Campanula* is an ornamental fleshy-rooted perennial greenhouse plant, with numerous drooping orange-tinted bell-shaped blossoms; it grows well in three parts sandy fibrous loam, and one of leaf-mould and peat. After the annual summer's growth it dies down, and requires a moderate rest, with occasional water, until spring, when it should be excited by means of a genial root-temperature or bottom-heat.

CHLIDANTHUS.—A genus of half-hardy or greenhouse bulbs. *C. fragrans* has fragrant trumpet-shaped yellow blossoms, resembling a long-tubed Narcissus or Jonquil. The bulbs require keeping dry in soil or sand until spring, and should be then planted in rich loamy soil, and gradually excited to growth in a warm frame or greenhouse; otherwise they may be planted about March or April in a warm dry greenhouse or on a wall border in the open air.

COBURGHIA.—A handsome half-hardy or greenhouse family of late summer-flowering plants. One of the best of the species is *C. incarnata*, which produces at the top of its flower-scape a cluster of beautiful salmon-tinted scarlet drooping long-tubed blossoms. The bulb requires a perfectly dry rest until spring, and strong enriched friable loam for its growth, which demands a vigorous leaf-development before midsummer to induce a blooming condition, and which, if latent, may be further encouraged by exposing the plants to a high summer temperature for a short period. The bulbs may with safety be potted in autumn or in spring, by strict attention to the foregoing features of management.

COLCHICUM.—The species and varieties of this genus, sometimes called Autumn Crocus, are well known dwarf hardy ornamental bulbs, producing large purplish-lilac Crocus-like blossoms in the late autumn months, and only requiring ordinary garden soil. They are admirably adapted for decorating the flower-garden, in groups or marginal belts, and should be planted in August or September previously to, or in November immediately after the season of bloom. *C. autumnale fl. pleno* is the variety most generally adapted for decoration. Amongst the remaining species, *C. byzantinum* has beautiful large semi-double rosy-lilac flowers; while *C. variegatum*, in which they are chequered or mottled with blush-lilac, and *C. autumnale album*, in which they are pure white, are highly commendable as affording variety among the first of autumnal blooming bulbs.

CROCUS.—This favourite genus of spring flowers yields to none in its season for effect and special adaptation to flower-garden decoration. Its dwarf and close habit of growth renders it suitable to positions where it may be allowed to grow undisturbed without being removed to make way for plants of later bloom; and its small size will allow of its being placed in close contiguity with the extreme outer margin of flower-beds or borders. Hence the suitability of the *Crocus* for forming ribbon-like lines or belts. It may also, like other bulbs, be planted in larger inner groups or masses, which can be removed before the summer bedding stock is planted. Besides this, it may be grown in pots to any extent in the form of portable specimens for conservatory and greenhouse decoration. For pot-culture the corms should be planted in successive batches, from six to ten or twelve being placed in each pot or vase, and using ordinary rich soil to a full inch in depth above the crowns; the pots are to be placed along with those of the potted Hyacinths, for the purpose of encouraging preparatory root-growth before their exposure for bloom. The *Crocus* differs, however, materially from the Hyacinth in its after treatment, inasmuch that after the formation of root-growth, the latter are benefited by a genial surface or bottom-heat, to mature the bloom, whilst the Crocus, Snowdrop, Aconite, and Dog's-tooth Violet only require the aid of a cold frame or pit, with due ventilation in mild weather, which preparation admits of their removal to the conservatory or drawing-room flower-basket. For extensive border decoration in large gardens, and where large quantities are required, the various colours, yellow, white, blue, violet, variegated, and Scotch are selected as the most appropriate. All the varieties under the above colours are well adapted for early forcing in pots; and amongst the large extra-fine hybrid varieties especially suited for this latter purpose, are those named *Aletta Wilhelmine*, *Dorville*, *La Majestueuse*, *Lilaceus superbus*, *Mont Blanc*, *Pluto*, *Pride of Albion*, *Prince of Wales*, *Queen Victoria*, and *Sir Walter Scott*.

Of the distinct species and rarer kinds, *C. medius*, *C. nudiflorus*, *C. odorus*, *C. pulchellus*, *C. serotinus*, *C. speciosus*, and *C. sativus* are the best and most desirable autumn flowering kinds; and amongst the earliest spring-blooming species, *C. biflorus*, *C. Imperatorius*, *C. nivalis*, and *C. multipetalus* are select and desirable.

COMMELYNA.—This family includes some half-hardy fleshy-rooted perennial herbaceous plants, suitable for flower-borders. They produce rich blue, and white, Spiderwort-like flowers, and require rich garden soil. After the autumn bloom, the tubers should be harvested dry before being affected by frost, and preserved like Dahlias, or Marvel of Peru, until spring, growth being then excited in a warm pit or frame, along with similar tubers and the plants hardened for planting in summer beds or groups.

CORYDALIS.—The tuberous or bulbous-rooted species of this family are neat hardy herbaceous plants requiring rich garden soil, and may be planted for flower-garden borders during the autumn months. *C. bulbosa*, *C. nobilis*, *C. tuberosa*, and *tuberosa albiflora* are the principal kinds.

CRINUM.—This highly ornamental genus includes hothouse and half-hardy species for the greenhouse and flower-garden borders. The former require a high genial moist temperature during their growing season, and nearly all the species succeed well when potted in strong rich loam with small portions of peat and sand. The half-hardy kinds should be planted according to the strength of the bulb six to twelve inches below the surface of a dry warm south border, in front of a greenhouse or conservatory wall, where with a slight protection from frost, they will produce their handsome large lily-like flowers. Amongst those species which require more than greenhouse heat, *C. amabile*, *C. americanum*, *C. erubescens*, and *C. meldense*, are plants of great beauty and fragrance; whilst *C. capense* (longifolium), *C. capense roseum*, and *C. riparium* are elegant kinds for open air wall-borders. The hothouse species, which are of permanent growth, and need but a partial rest after each vigorous leaf development, are sold in a growing state; but the hardier species intended for open air culture, having a rest period extending from winter until spring, are occasionally sold in a dry dormant condition during the autumn months.

CROCOSMA.—A beautiful half-hardy or greenhouse tuberous-rooted plant. The only species, *C. aurea*, sometimes called *Tritonia*, requires a short rest after the summer growth, and should be re-potted in autumn along with other bulbs, being wintered with Ixias, &c., in a cold pit or cool house; a soil similar to that employed for *Ixia* is also suitable for this plant. When grown in pots with from six to twelve tubers in each pot, this plant becomes a very ornamental one for exhibition or decorative purposes during the summer months.

CROWN IMPERIAL.—See **Fritillaria.**

CUMMINGIA.—A genus of small elegant half-hardy bulbs. *C. trimaculata* has a slender panicle of rich blue starry blossoms spotted with white. It requires soil and treatment like those given to *Ixia*, and similar bulbs, and may be protected from frost through winter in a pit or frame, and planted out in the open air border in May or June, or it may be bloomed in pots. The bulbs may be re-planted each autumn after a few weeks' dry rest.

CURCUMA.—The species of this family are broad-leaved hothouse herbaceous plants, with creeping rhizomes or tuber-like bulbs; they bloom in the late summer months, and grow freely in rich loam, with one-fourth peat and dry leaf-mould. The flowers are variously red, yellow, and pink, but they are less conspicuous and attractive than the involucres or bracteal flower-leaves that surround them, which are pouch-shaped, and picturesquely coloured or tipped. In *C. cordata* these bracts are tipped with rich violet-purple; in *C. Roscoeana* they are entirely orange-scarlet; and in *C. rubricaulis* the stem is coloured red.

CYCLAMEN.—The species and varieties of this genus are very pretty half-hardy and greenhouse tuberous plants, blooming through the winter and spring months. The species may be separated into two sections, pertaining respectively to *C. persicum* and to *C. coum*. The former are somewhat less hardy than the latter, and therefore better adapted for the greenhouse and conservatory; the latter are manageable through the winter with protection from frost by the aid of a good cradle-bed or pit. After the early spring-bloom the leaf-growth is encouraged for a few weeks longer, and then they are allowed to cease from growth, and are placed upon a dry border until late summer and autumn, and then during the latter period they are re-potted or re-surfaced as may be required. One half good loam, and the remaining half equal portions of sandy peat and well decomposed leaf-mould, form a compost suitable for their growth. When potted they are protected in frames or pits until severe weather comes on, when those of the *persicum* section require to be housed for the winter, and those of the *coum* section to be plunged in ashes or dry tan within the cradle-bed or frame. The Persian varieties are adapted for blooming throughout the early winter months by being re-potted at an earlier period, and after the root-growth is formed in autumn, the varieties in either section may be stimulated to bloom successively by the gentle heat of a greenhouse or early forcing pit. Amongst the most desirable varieties for early and successive bloom are *C. persicum* and its varieties *album*, *rubrum* and *roseum*, and *C. africanum*. Of the *coum* section, the most elegant are *C. Atkinsii*, *C. Atkinsii roseum*, *C. ibericum*, *C. ibericum album*, *C. coum*, *C. coum carneum*, and *C. vernum*. The hardy autumn-flowering kinds are *C. neapolitanum* and *neapolitanum album*, whilst *C. europæum* is also a late summer-blooming species with richly fragrant blossoms.

CYCLOBOTHRA.—A small genus of hardy or half-hardy bulbs, of Fritillaria-like growth. *C. alba* has terminal drooping egg-shaped white flowers, the margins of the concave petals converging to a sub-globular or ovate form, whilst the inner surface of the petals are singularly surfaced with hairs. The species require a dry and rather shady border or prepared bed of light soil, with the protection of a temporary pit or frame, to shield the bulbs from wet until spring. For culture in pots, a very similar treatment to that of *Ixia* may be given, with the exception of a longer period of rest. The bulbs may be planted in autumn.

CYPELLA.—A half-hardy bulb, of Tigridia-like habit, and bearing similarly-formed blossoms. The species, *C. Herberti*, has the flowers of a buff-orange tint, picturesquely marked in the centre with red dots. It requires similar treatment to the *Ixia*, that is, to be planted in late autumn, and protected from frost in a cold pit or greenhouse, a slow root-growth only being encouraged until spring.

DENTARIA.—A hardy tuberous perennial herbaceous plant, with purple cruciferous blossoms. The common species, *D. bulbifera*, requires good garden soil, and a permanent situation in the flower border. It may be transplanted in autumn or spring.

DIOSCOREA.—This genus includes *D. Batatas*, the Chinese Yam, a climbing plant with ornamental foliage and graceful habit of growth, forming long deep penetrating tubers of potato-like quality, and bearing small delicately-fragrant blossoms, unfolding in autumn. The tubers or sets should be planted from October till spring, in deep dry soil.

DOG'S-TOOTH VIOLET.—See **Erythronium.**

ERYTHRONIUM.—This genus contains the well-known dwarf elegant early spring-flowering bulbous species, commonly called Dog's-Tooth Violet, which succeeds in sandy garden soil, and forms attractive groups or marginal belts to flower-beds or borders. Where the soil is stiff or clayey, the bulbs, when planted, require to be covered with silver or river sand before the surface soil is applied. The various kinds are planted during the early autumn months. The most generally cultivated sorts are *E. Dens Canis*, and its varieties *album* and *roseum*. The *E. americanum*, a yellow-flowered species, requires planting in deep heath or peat-soil in a moist situation. Pots containing six to eight bulbs in each may be had earlier in bloom, by treating them in the same way as the Crocus, when the latter is grown in pots.

EUCHARIS.—A small genus of beautiful semi-evergreen bulbous-rooted hothouse plants. One of the best of the species is *E. amazonica*, which bears large snow-white richly-odorous Pancratium-like blossoms during the summer months. It succeeds well in a compost consisting of three parts loam and one of peat and sand, and requires the development of vigorous leaf-growth, and free exposure to light.

EUCOMIS.—A family of sub-evergreen plants for cool greenhouse or pit culture, producing a large radiating crown of leaves which in some of the species are beautifully striated with dark brown lines and spots. A compost of rich sandy loam and leaf-mould is suited to their growth. If planted six to nine inches deep upon a dry border against a wall in light soil, they will grow luxuriantly and bloom annually. When allowed to rest in autumn, they should be watered seldom but freely until the leaf-growth is well developed. *E. punctata*, *E. regia*, and *E. undulata* are the most generally cultivated species.

FEATHERED HYACINTH.—See **Muscari.**

FRITILLARIA.—A genus of pretty hardy bulbs, of dwarfish habit, with pendent bell-shaped flowers. *F. Meleagris* includes some of the prettiest dwarf hardy forms of the family, adapted for small parterres and borders. They are of the size and height of a medium tulip, and have narrow glaucous green leaves, and very elegant drooping bell-shaped flowers of a purple and brownish-red colour, prettily cheq ued with white. The species also occurs in a double-flowered state. *F. præcox* is conspicuous for its white pendulous blossoms. A noble species, *F. imperialis*, called Crown Imperial, is of taller habit, with a pendulous whorl of flowers, surmounted by a tuft or crown of leaves. All the species and varieties are adapted for cultivation in ordinary good garden soil.

GALANTHUS.—This small genus contains the well-known Snowdrop, which, along with the *Crocus*, is one of the most generally welcomed of early spring flowers in the open borders. It forms an excellent margin to flower-beds and borders, and may, like the Crocus, in many situations be left undisturbed, its small size and dwarf habit adapting it for a position so near the margin that the leaves do not interfere with other plants. The less they are disturbed, if in situations where they can be left untouched, the better, as the bulbs then become thick, and their white flowers, being in consequence more numerous, are more effective. The ordinary planting season is in the autumn, from September to November, while the bulbs are dormant, and they succeed in any good ordinary garden soil. The double-flowered form of the common sort, *G. nivalis fl. pleno*, is to be preferred; but the single-flowered form is the earliest to bloom. The Crimean Snowdrop, *G. plicatus*, is a very interesting plant either for the flower-border or for pot-culture in cool frames, like the Crocus, and is of larger stature, and produces larger blossoms.

GELASINE.—A small genus of half-hardy or greenhouse bulbs, allied to *Trichonema*, containing *G. azurea*, a dwarf species, having compactly-lobed deep blue bell-shaped flowers, with a white centre, and marked with small dark bars. It requires sandy loam and peat, and very similar treatment to that given to *Ixia;* the bulbs should be planted or potted in autumn, and allowed to make root-growth slowly until spring.

GLADIOLUS.—A genus of magnificent hardy plants for greenhouse and flower-garden decoration throughout the spring, summer, and autumn months. The various ornamental species and varieties admit of being arranged in three sections, equally beautiful in their respective seasons. The Gandavensis section (I.) comprises the magnificent sorts seen at the public exhibitions, and these are the best adapted for large groups or beds in the summer and autumn arrangements for the flower-garden. These varieties are to be procured from the middle of October to April, but the corms are kept in a dry state until the latter month or early in May, and then planted as required for brilliant groups or lines. They thrive in all good garden soils, especially those of a deep sandy character; while in those of heavier texture, the bulbs should be covered with sand before the surface-soil be applied. After the season of bloom, the stems must be allowed to dry before being cut off, and the bulbs or corms kept in a perfectly dormant state, preserved against frost in a cool shed or room until the planting season; but where premature growth takes place, they should be planted for earlier bloom as soon as possible. The Ramosus section (II.) includes varieties of a less robust character than the previous one, but of brilliant colours and branching habit, and with those of the next group adapted both for the greenhouse and for the open air beds. The corms are procurable from October until February. If planted at the former month for spring and early summer decoration in the greenhouse, they should be potted in nearly equal portions of loam, peat, and leaf-mould well mixed with one-fourth part of river sand, and protected from frost during winter in cold pits or frames, along with *Ixias*, &c.; at this season they must be only occasionally watered until the leaves appear, after which, regularly as required. When the bloom is expended, a dry rest or dormant condition is to be gradually induced and continued until the following planting season. The Cardinalis section (III.) includes the most slender and neat-growing varieties, specially

adapted for pot-culture in the greenhouse, on account of their smaller growth and their graceful scapes of brilliant-coloured and picturesquely spotted flowers. These kinds are planted from October until December, and require similar treatment to that of the foregoing section, namely, late autumn potting and preservation in cold pits until spring, previous to their removal to the conservatory. The varieties of the first or Gandavensis section are generally planted in single or double lines, or else in small or large groups, for flower-garden decoration; but in the two latter sections, the smaller growth admits of two or four bulbs being planted in a pot, where an effective display is required in large houses or conservatory promenades. Amongst the most select and beautiful varieties are the following:—SECT. I.: *Adonis, Archimedes, Bertha Rabourdin, Brenchleyensis, Calypso, Clemence, Comte de Morny, Comtesse de Bresson, Couranti fulgens, Daphne, Diana, Don Juan, Dr. André, Duc de Malakoff, Egerie, Endymion, Janire, La Quintinye, Madame Binder, Madame Furtado, Madame de Vatrys, Madame Hacquin, Madame Souchet, Madame Victor Verdier, Mazeppa, Napoléon III., Neptune, Ninon de l'Enclos, Ophir, Oracle, Othello, Pegase, Penelope, President Decaisne, Rebecca, Vellida, Vulcan.* SECT. II.: *Abd-el-Kader, Anna Paulowna, Batavia, Crocata, Elegans, Fanny Elsler, Formosissimus, Imperialis, Insignis, Jenny Lind, La Fille du Régiment, La Singulière, Lady Franklin, Maculata alba, Madame Van der Hoop, Orange Boven, Paxtoni, Prince Albert, Prince of Waterloo, Princess Alice, Queen of England, Queen of the Netherlands, Queen Victoria, Rosa Mundi, Varié rubra.* SECT. III.: *Bouquet tendre, Duchess of Orleans, General Changarnier, Incomparable, La Fontaine, Louis van Houtte, Madame Chauvière, Madame Furtado, Massena, Pauline Thinus, Persée, Professor Decaisne, Sebastopol, Taglioni, Victoire Pelé.*

GLORIOSA.—A family of ornamental deciduous tuberous-rooted herbaceous plants, now sometimes called *Methonica*, of climbing habit, and requiring a rest after growth until the spring. *G. superba* is a hothouse species, the tubers of which should be planted in well-drained pots, using good loam and sandy peat well mixed with leaf-mould and sand, the two latter ingredients forming one-fourth of the whole bulk. They should be started into growth by means of a gentle root-warmth, and only watered in proportion to the advancing growth, which as it progresses should have a free exposure to light. The singularly elegant orange-tinted blossoms, with their long narrow recurved segments, resemble a Turk's Cap Lily, but the curving form is far more graceful and undulated. *G. Plantii* (Methonica virescens) is a warm greenhouse plant, of much dwarfer growth, requiring, as to soil and exposure to light, a similar kind of treatment to the former, but succeeding in smaller-sized pots; the tubers do not, however, require the same root stimulus. If started slowly into growth, in rich soil in an intermediate temperature, without fire heat, it will expand its beautiful flame-coloured blossoms in the later summer and autumn months. After the growth decays, the root-tubers are to be allowed to rest in dry soil or sand until the following April or May.

GLOXINIA.—A very ornamental family of tuberous-rooted hothouse plants, requiring for their culture a compost of one-half sandy peat, the remainder being made up of equal portions of loam and well-decayed leaf-mould. They may be procured throughout the early autumn months with other early-forcing bulbs, but must be kept dormant until spring, and then re-potted and excited in a warm genial temperature, watering cautiously until the leaves are fairly started into growth. After the bloom-season has passed, the tubers are to be gradually dried off, and stored away with dormant bulbs until March. The varieties range in two distinct sections, those having the tubular bell-shaped flowers erect, and those having them half-drooping; and no collection is complete without a selection from both classes. The following are amongst the finest varieties:—Drooping-flowered: *Claude Lorraine, Cœrulea variegata, Domenichino, Impératrice Eugénie, Madame Frederic Tiesmeyer, Madame Auguste Miellez, Madame Picouline, Madonna, Mathilde de Landevoisin, Perugino, Princess Alice, Scholastice, Sebastiano, Sir Hugo, Spagnoletti, Striata maculata, Wilsoni.* Erect-flowered: *Alba auriculata, Duchesse de Brabant, Formosa, Guido Reni, Ipomœa, Lady Emma Stanley, Roi Ferdinand, Thomas Lobb.* The numerous cultivated varieties have sprung chiefly from the Brazilian *G. speciosa.*

GRAPE HYACINTH.—See Muscari.

GRIFFINIA.—The species of this genus are warm greenhouse or hothouse bulbs, allied to *Amaryllis*, but of smaller size, requiring for their growth a compost of friable sandy loam and peat. They should be started in a well-ventilated genial atmosphere, any time from March until June, according to the previous summer's growth. After the bloom has decayed, the leaf-growth is to be encouraged in a higher temperature, and after this the bulbs allowed a perfect rest until March or April. The flowers of *G. hyacinthina* and *G. Liboniana*, which are white, richly tipped with violet-blue, are singularly interesting.

GUERNSEY LILY.—See Nerine.

HABRANTHUS.—A rather extensive genus of hardy or half-hardy bulbs, distantly related to *Amaryllis*, and requiring for open-air culture good garden soil, with one-third sandy peat intermixed, and to have surface protection during winter until March. If grown in pots, they are to be treated similarly to *Ixia*. *H. Andersoni* and *H. pratensis* are desirable species.

HÆMANTHUS.—A genus of showy bulbs, principally consisting of ornamental greenhouse species, some of them remarkable for their dwarf growth and their large opposite leaves, which assume a depressed position over the bulbs, and nearly cover the pots in which they grow. Others are of a more erect growth; but all are distinguished by their glomerate clusters of rich salmon-tinted or orange-scarlet flower filaments, produced in the summer and autumn months. Fibrous sandy loam, with a small amount of peat, is suitable for their cultivation. After the season's growth and bloom, a partial rest is desirable during the winter months, and the bulbs or tubers may be re-started in spring or summer, as required. *H. coccineus, H. insignis, H. puniceus,* and *H. albiflos,* are select species for the greenhouse; and *H. multiflorus* is a fine crimson-flowered kind for the hothouse.

HESPEROSCORDUM.—A neat slender-stemmed hardy bulb, bearing a terminal cluster of small white flowers, and requiring good ordinary garden soil for its culture. It will thrive in any dry subsoil, with a slight surface-protection of dry tan or leaf-soil. The species is called *H. lacteum.*

HIPPEASTRUM.—A genus of beautiful and noble hothouse bulbs, closely related to *Amaryllis*, from which it has been severed; indeed, most of the plants commonly known as forms of *Amaryllis* belong properly to this group. They are very ornamental,

and require as to soil, situation, and periods of alternate growth and rest, similar treatment to that already recommended under *Amaryllis* (which see). The species called *H. robustum* is a handsome rich crimson-flowered plant; and amongst others, *H. Ackermani*, and *Ackermani pulcherrima*, *H. aulicum* and *aulicum platypetalum*, *H. croceum grandiflorum*, *H. Johnsoni* and *Johnsoni superbum*, *H. marginatum* and *marginatum venustum*, *H. reticulato-striatifolium*, *H. solandriflorum*, and *H. vittatum* and *vittatum superbum*, are very select and constant blooming kinds, in their respective seasons. There are many other fine hybrids of diversified colours.

HYACINTHUS.—The common garden Hyacinth is an improved form of *H. orientalis*, resulting from long domestication and careful selection and cultivation. These admired flowers, so extensively grown for decoration in winter, are planted during the autumn months. Their ordinary routine of management is so well known to cultivators, that it will be sufficient to state that all the sections require similarly enriched friable loam or garden soil, mixed with one-third well-decayed manure or leaf-mould, adding one-fourth more of pure river or silver sand. For a rich and effective display, place two bulbs in each pot of six inches diameter, or one bulb in a pot a size smaller. In planting, the bulbs should be pressed firmly in the soil so as to leave about one-third exposed. When thus prepared, they are to be arranged upon a dry surface of fine coal-ashes, and covered over to a depth of six or nine inches above the bulb with half-dried old tan, pure leaf-mould, or sifted coal-ashes, and in this position the preparatory *root-growth* is to be formed previously to that of the leaf and flower scape. In the course of a month or six weeks, the pots are removed from this situation, cleaned, and set in a dry position for a few days, and are then placed upon a gentle forcing-bed, or tank-heated surface, or otherwise near the light in a genially warm greenhouse. The earlier and later potted bulbs are thus successively treated as required for bloom. For culture in glasses, the bulbs are to be placed so that they just come in contact with the water, and the glasses to be set in a cool darkened closet, or on shelves screened from the light, until the roots are protruded two or three inches in length; after which, they may be gradually exposed, and at length brought near the light in the drawing-room window. They need, however, to be protected against frost or a very low temperature at night, if bloomed in severe weather. The water may be changed without injury every ten days or a fortnight. This genus also contains *H. amethystinus*, a pretty small hardy species with flowers of an amethyst blue, which may be cultivated in borders of good garden soil.

HYMENOCALLIS.—A genus of ornamental hothouse and greenhouse bulbs, allied to *Pancratium*, and requiring very similar treatment. They should be grown in rich sandy loam. The principal species being sub-evergreen, may be re-potted in autumn or spring, and require continuous growth when under glass, but with a less ample supply of moisture for a short period after a vigorous leaf-growth, and previous to being re-stimulated for bloom. *H. expansa*, and *H. speciosa*, are handsome species for the hothouse, and *H. littoralis* is adapted for a warm greenhouse.

IPOMŒA.—Of this very extensive family of climbing plants, *I. truncata* and *I. tuberosa* are tuberous-rooted species. The former is adapted for greenhouse culture, and is moreover a neat small-leaved kind, and said to be a plant of great beauty. The latter is a hothouse twining herbaceous kind, with white blossoms in the late summer months. They require a good soil of loam and peat.

IRIS.—This genus contains hardy bulbous-rooted species, which are very gay and effective for flower-garden borders, beds, or shrubberies. They are adapted for all good garden soils that are not heavy or tenacious, and are suitable for permanent growth if re-planted and divided every third year. The bulbs are obtained in the autumn, and should be planted early, about three inches deep, being also covered with sand before applying the surface soil. The common species are *I. Xiphium*, known as the Spanish Iris, and *I. xiphioides*, known as the English Iris, of each of which there are a large series of named varieties of different colours. The genus also contains some other interesting species of similar character, namely, *I. persica*, the Persian Iris, a neat dwarf bulbous plant, well adapted for pot culture, and admitting of from two to four bulbs being grown in each pot. They should be treated the same as the Crocus in pots, and make a pretty variety amongst other gay spring-flowering plants. *I. susiana*, the Chalcedonian Iris, another remarkably beautiful bulbous species now seldom seen in cultivation, has large, picturesque, broad-petaled, and curiously brown-lined, blush-tinted flowers, and is adapted either for pot-culture or for the open borders.

ISMENE.—A small genus of warm greenhouse bulbs, adapted also for open-air culture in summer, and having a Pancratium-like habit, and handsome funnel-shaped richly fragrant blossoms, with an interior salver-like crown or coronet, and strap-shaped radiating lobes from the margin. The species are purchaseable throughout the autumn months, and require to be kept quite dormant until early spring, and then to be either potted, or otherwise planted in a very sandy dry border about March or April. On the approach of frost, the bulbs must be removed and kept thoroughly dry until again required. *I. Amancaes* and *I. calathina* are fine species the former with yellow, the latter with white flowers.

IXIA.—A beautiful genus of small half-hardy or frame bulbs, with spikes or racemes bearing very gay and effective large starry blossoms, during the summer and autumn months. For culture they require equal parts of sandy loam and peat, well mixed with one-fourth of leaf-mould and sand. The species are principally adapted for pot-culture, and should be planted from October to December. The bulbs or corms being small, they form the most brilliant display when planted three to six in each pot. Thus prepared, they are protected from frost during winter in cold frames or pits, being plunged in dry ashes or sand, with external covering when required. While there they are only encouraged to make root-growth, and for this purpose are watered liberally about once each week, the frame or pit being ventilated freely in the absence of frost. In the spring, watering must be attended to daily as required, and as the flower-scapes appear, the pots are to be removed to the conservatory or greenhouse. After the bloom decays, the bulbs are to be thoroughly dried and stored away with other dormant bulbs, or shaken from the soil and preserved from frost in a cool dry place. If planted in open-air borders or beds, a dry subsoil or under-stratum is requisite. A mixture of one-half sandy peat with good garden mould should be prepared, and in this they are to be planted from two to four inches in depth, according to the size of the bulbs in the various species. The bulbs must be covered with silver sand before the surface soil is applied. When planted, no artificial moisture is required, as only the formation of root-growth is requisite until spring. On the approach of severe frost, the beds must be covered with dry tan or leaf-mould to the depth of six inches, which covering is to be removed in February or March, as the season demands. The following kinds

comprise a selection of the most beautiful species and varieties, of varied colours:—*Amelia, Annette, Aurantia major, Bucephalus, Campana, Crateroides, Cyrus, Faunus, Francis, Fulgens, Hortensis, Laura, Longiflora hybrida*, and its subvarieties *lutea, rosea*, and *rubra, Plautus, Purpurea elegans, Rosea maculata, Rosea multiflora, Speciosa, Theseus, Titus* and *Viridiflora*. There are many other elegant and picturesque varieties.

JONQUIL.—See **Narcissus.**

LACHENALIA.—A genus of neat and elegant dwarf greenhouse bulbs, having fleshy leaves and erect flower-scapes or stems, supporting a raceme of pendent yellow and red flowers, which are produced in the spring and early summer months. After the usual summer rest, they should be re-potted early in autumn, three or four bulbs being planted in each moderate-sized pot, using a compost of three parts of sandy peat and one of sandy loam and leaf-mould. After the growth declines, the bulbs are allowed to ripen off gradually, and are preserved in a resting state in a cool dry frame till re-potted in autumn. A succession will be obtained by re-potting at intervals between August and October or November. The most accessible showy species are *L. pendula*, with large dark-red tubes, and *L. tricolor, L. luteola*, and *L. quadricolor*, which are yellow banded with red or green. All are very pretty and gay-looking flowers.

LEUCOJUM.—The species comprised in this genus are hardy spring and early summer blooming bulbs for permanent growth in the flower-borders, requiring good sandy garden soil. They are known under the name of Snow-flake. The taller species, *L. æstivum, L. pulchellum*, and *L. vernum*, produce elegant drooping Snowdrop-like blossoms, on flower-scapes from twelve to eighteen inches in height; while the beautiful *L. autumnale*, sometimes called *Acis autumnalis*, is of dwarf growth, and has pendent bell-shaped white blossoms, prettily stained with rose. The former thrive in almost any open situation; but the latter succeeds best in equal parts of sandy peat and loam.

LYCORIS.—A medium-sized autumn-flowered greenhouse bulbous plant, with glaucous-hued leaves, and a terminal truss of showy narrow-lobed Amaryllis-like flowers. The species, *L. aurea*, succeeds under pot-culture; or if planted in a dry-bottomed border, and afforded surface protection in winter, it occasionally gives its flower-scape from July to October. For growth in pots, it requires three parts loam and one of rich leaf-mould or decayed manure, and after its leaf-growth in winter, it should be allowed to rest until early summer.

LILIUM.—This highly ornamental genus of bulbs may be regarded as generally hardy, but, for cultural purposes, it may be judiciously divided into two groups, containing respectively the perfectly hardy kinds suited for the flower-garden, and the half-hardy kinds adapted for the decoration of the conservatory or greenhouse. The former group, with a few exceptions hereafter noticed, is suitable for being cultivated in almost all ordinary garden soils; the latter, for pot-culture, succeeds well in three parts loam, and one of peat, well mixed with one-fourth in addition of leaf-mould. For flower-garden decoration, many of the species are very beautiful, and they are most easily cultivated, being adapted for permanent positions, and requiring no artificial protection. The whole of the species may be planted during the autumn months, at from three to six inches in depth, as the strength of the bulbs may require. Amongst the finest perfectly hardy species, the following may be selected as the most desirable for a general collection:—*L. atrosanguineum* and its varieties, *Vulcan*, and *Titien, L. bulbiferum*, and its varieties *fulgens, umbellatum*, and *umbellatum fulgidum, L. canadense, L. candidum*, and *candidum argenteum, L. chalcedonicum, L. excelsum, L. longiflorum, L. Martagon*, and *Martagon album, L. superbum, L. tigrinum*, and *L. venustum*. Of these, *L. superbum* and *canadense* require peat soil for their successful culture. As a selection for decorative growth in pots in cool conservatories or greenhouses, the following are most effective:—*L. colchicum, L. eximium, L. giganteum* and *giganteum cordifolium, L. japonicum, L. longiflorum "Takesima," L. sinicum, L. speciosum* (*lancifolium*), together with its fine varieties *cruentum, punctatum, corymbiflorum album*, and *grandiflorum, L. Thompsonianum, L. Thunbergianum grandiflorum, L. Wallichianum*. The last-named kinds may be safely potted from September to November, and preserved from frost over winter in cool frames or pits. As the foliage appears, towards spring, they should be removed to deeper pits or cool houses for summer growth. After the flower-stems decay in autumn, the bulbs should have a partial rest from growth previously to being re-potted.

MARVEL OF PERU.—See **Mirabilis.**

MILLA.—A small family of dwarf hardy bulbs, flowering in the spring months, requiring three parts of sandy loam and one of peat. They may be either cultivated within a frame, like Ixias, &c., or planted in a dry south-wall border, and protected from frost as described for similar plants. *M. biflora* and *M. uniflora* are the principal species, and these may be planted in the autumn months. After the season of bloom, they are allowed to remain dormant in dry soil or sand.

MIRABILIS.—A very ornamental genus, known under the name of Marvel of Peru. The principal species, *M. Jalapa*, is a neat growing half hardy or greenhouse herbaceous plant, with small fusiform tubers requiring similar treatment to the Dahlia, and forming gay dwarf bushes with a profusion of various coloured salver-like blossoms from July to September; on the approach of winter, the tubers are taken up and preserved from frost in a tolerably dry state, within a cool room or shed until spring; and they are again started into growth in spring, along with Dahlias or similar roots, and thus prepared for open air culture. The flowers are very sweet-scented in the evening. *M. longiflora* is another pretty sweet-scented species.

MOREA.—A very pretty family of small frame or cool greenhouse bulbs, the generality of them having narrow grass-like foliage. They bear variously coloured Iris-like flowers, in the early spring or summer months, and require sandy loam with small portions of peat and leaf mould for their growth. After the bloom, from April to June, is past, the bulbs are treated similarly to Ixias, potted in October and November, and preserved from frost in cool frames until early spring. *M. edulis, M. juncea*, and *M. viscaria*, are interesting species for general culture.

MUSCARI.—A pretty genus of neat early-blooming plants, thriving in ordinary light or sandy garden soil. The whole are hardy, and may be transplanted during the autumn months for permanent growth in the flower-borders. *M. botryoides* and *botryoides*

album, and *M. racemosum*, are generally cultivated kinds, with globular flowers, and are commonly called Grape Hyacinths; *M. moschatum*, with greenish flowers, called the Musk Hyacinth, is remarkable for its rich musky odour; and *M. comosum monstrosum* is the well-known Feathered Hyacinth. This latter has a flower-spike almost as large as a Dutch or Garden Hyacinth, the ordinary flowers of the species being transformed in this most remarkable variety into an exquisitely beautiful tassel-like spike of elongated petaloid filaments of a light bluish-purple.

MUSK HYACINTH.—See **Muscari.**

NARCISSUS.—A valuable tribe of early spring-flowering hardy bulbs, adapted to all good light garden soils, in which they may be planted from two to four inches in depth during the period from September to November. The various kinds admit of being grouped in three sections:—Polyanthus Narcissus (I.); Jonquils (II.); Miscellaneous species (III.). The first section includes those adapted for early forcing along with Hyacinths, either in glasses or pots, and they require similar soil and treatment. The kinds most generally cultivated are: *Apollo, Bouquet Triomphante, Gloriosum superbum, Grand Monarque, Grand Soleil d'Or, Lord Canning, Louis le Grand, Paper White, Queen Victoria, Roman* (double), and *States General.* These should be planted from two to four bulbs in each pot, by which means a more effective display is obtained. The large terminal clusters of richly fragrant blossoms are very ornamental in diversified groups of early flowers. The second section, or the Jonquil Narcissi, are equally valuable for forcing, and very distinct, producing self-coloured golden-yellow, richly odorous blossoms. These are best adapted for pot culture, and will appear most effective when planted with four to six bulbs in each pot or vase. After the bloom is expended the bulbs may be planted in the flower garden. The well-known *Double, Single,* and *Dwarf* varieties, with *N. Campernelli,* are the kinds, in this section, usually grown. The third section consists of distinct miscellaneous species, which are best adapted for the flower garden borders, where they rank amongst the gayest of spring flowers. The following kinds comprise a valuable selection for successional display from March until May. Of the taller growing kinds:—*N. albo-plenus odoratus, N. bicolor, N. biflorus, N. bifrons, N. cernuus, N. compressus, N. incomparabilis, N. lobularis, N. maximus, N. moschatus, N. patulus, N. poeticus,* and the varieties called *Orange Phœnix, Silver Phœnix,* and *Sulphur Kroon;* and amongst the dwarfer species, *N. Bulbocodium, N. medius, N. minor, N. minimus, N. pumilus plenus, N. tenuiflorus.* Of the showy Daffodil tribe, the double and single-flowered varieties called *Van Sion* are the finest for borders or front beds.

NERINE.—The species of this family are small Amaryllis-like bulbs, suitable for greenhouse culture, growing well in good yellow loam, with a small portion of well decomposed leaf-mould. All the kinds are autumn-flowering plants. After their blooming season, they require to be freely grown through the winter in a well ventilated house until April, to obtain a vigorous leaf growth; and after this they should have a dry rest until again stimulated to bloom in September or October. The well-known Guernsey lily is *N. sarniensis,* which is annually imported with ready-formed flower scapes in September, and is very valuable on account of its beautiful flowers for greenhouse decoration. The other species, *N. Fothergillii, N. venusta,* and *N. corusca,* are brilliant-flowered kinds with flowers of rich vermilion and rosy scarlet tints, whilst *N. undulata, N. flexuosa,* and *N. humilis,* are rather more slender in habit, and differ also in the delicate rosy-blush flower tints of their blossoms.

ONION PLANT.—See **Ornithogalum.**

ORCHIS.—A genus of terrestrial plants having bulb-like tubers, and remarkable for the curious structure of their flowers. *O. foliosa, O. longebracteata* (*Robertiana*), and *O. longicornu,* are very desirable kinds. *O. longebracteata* is a handsome hardy species, with a spike of purple flowers; *O. foliosa* is a half-hardy or greenhouse plant, producing a dense pyramidal-ovate spike of shaded light purplish-blue blossoms; while *O. longicornu* is a handsome frame plant, producing spikes of rich purple flowers. They require open porous loam and small portions of sandy peat, the whole well mixed with one-fourth more of chopped moss, whether grown in pots or open pits of soil. After the bloom is past, they all require to be kept moderately moist on a cool border, or in a frame until spring.

ORNITHOGALUM.—The principal species of the Star of Bethlehem in cultivation are hardy summer-flowering bulbs, with snow-white starry blossoms, and nearly all grow well in good light garden soils. They may be transplanted during the autumn and mild winter months, and inserted from two to four inches in depth, according to the vigour of each bulb. The most ornamental hardy species are:—*O. latifolium, O. longebracteatum, O. montanum, O. narbonense, O. pyramidale,* and *O. umbellatum.* The most select kinds for pot culture are:—*O. arabicum, O. aureum,* and *O. thyrsiflorum,* which may be planted from September to November, and be protected from frost in cool pits or greenhouse. After the summer bloom is past, the bulbs are allowed to rest until repotted at the above period. *O. scilloides,* popularly called the Onion plant, is a very interesting object for window culture, thriving well in an ordinary living room.

OXALIS.—A genus of small neat half-hardy or greenhouse bulbs, requiring to be grown in three-parts of sandy loam and one of peat. The various species may be planted in pots from September to December, most of the smaller kinds requiring three or four bulbs in each pot for an effective display. They are preserved in cool pits with Ixias, &c., until spring, and then either bloomed in frames, or in the greenhouse. Amongst those best adapted for the latter are: *O. Boweana, O. caprina, O. elegans, O. Piottæ, O. rosacea grandiflora,* and *O. versicolor.* The species best suited for flower garden decoration, in small parterres or margins, are:—*O. floribunda* and *O. spectabilis;* whilst amongst the numerous dwarf species suited for pot culture in pits or frames, as referred to above, are:—*O. arborea, O. digitata, O. elegans, O. flava, O. floribunda alba, O. grandiflora, O. lobata, O. purpurea, O. rosacea, O. rubella, O. rutilans, O. spectabilis, O. speciosa,* and *O. tetraphylla.*

PANCRATIUM.—A fine genus of bulbs, related to *Hymenocallis,* consisting for the most part of species requiring a warm greenhouse or stove. The bulbs produce their flowers in the early spring and summer, and require continuous growth, and a free supply of water during the flowering season. The whole of the speces thrive in a rich yellow loam, and after making vigorous leaf growth will often produce their large corymbs of fragrant white flowers. The various species are obtained in autumn, and repotted as required.

P. americanum, *P. caribæum*, *P. mexicanum*, and *P. parviflorum*, are select kinds for hothouse culture. The hardier kinds for the greenhouse and cold pit culture are:—*P. carolinianum*, *P. illyricum*, and *P. maritimum*; these being potted in the soil referred to, may receive the same protection as Ixias, &c., until spring, and may then be bloomed in the cool greenhouse, or frame, as convenient.

PENTLANDIA.—A genus of pretty half-hardy or greenhouse Peruvian bulbs, requiring for their growth three portions of sandy loam, and one of peat and leaf-mould. They may be potted in autumn, and kept at perfect rest until spring, before being stimulated to growth, or otherwise may be planted on a dry wall-border, about April, and after the flower scape dies away, repotted before severe frost, and kept perfectly dry until the following summer. *P. miniata*, with terminal drooping bell-shaped blossoms, is a very interesting plant amongst other small bulbs.

PHÆDRANASSA.—A small genus of late autumn-flowering greenhouse bulbs, requiring pure yellow loam for their culture. The species, *P. chloracra*, has flower scapes supporting terminal drooping flower tubes of a crimson-rose colour, tipped with green, these being produced during winter, or in the early spring. They require a similar treatment to the genus *Coburghia*.

RANUNCULUS.—The tuberous-rooted sections of Persian and Turkey Ranunculus are very ornamental, producing a brilliant effect in their respective seasons of bloom. They are planted from October to December for early and continued display, and again in February, for summer flowering. The compost best adapted for these plants is one-half good pasture yellow loam, well mixed with one-fourth of rich garden soil, and of well rotted manure. The tubers are planted in drills six inches apart, and two and a half to three inches in depth, which depth after allowing for a good stratum of silver sand on which to plant the roots, and an upper layer of sand to cover them, will admit of about one and a half to two inches in depth of surface soil. If planted in promiscuous groups, the same treatment as to planting should be observed. The Turkey or Turban Ranunculus are of larger and bolder growth, with flowers of greater size and very splendid colours. These should be planted in October or November with the treatment above indicated. In severe winters the beds or groups may be protected by a stratum of light litter, or dry rough sifted tan, for a few weeks, until the leaf growth appears. The Persian or Asiatic varieties are procurable either mixed or as named kinds in special classes of colour, a large number of varieties being grown. The select sorts of the Turban class are;—*Grandiflora* crimson, *Romana* scarlet, *Turban d'or*, and *Seraphique* yellow, and *Lion d'orange* orange.

RIGIDELLA.—A genus of small, half-hardy or greenhouse bulbs, with bright scarlet or flame-coloured blossoms, adapted for pot culture in frames or cool houses, requiring to be planted in three parts of light sandy loam and one of peat soil. The bulbs may be obtained in autumn, and kept perfectly dry until March or April; then potted and preserved in pits with only occasional free watering until the leaf blade appears. The species will also do well if planted in a dry border, and after the bloom is over, the bulbs should be stored away dry until the replanting season. The principal kinds in cultivation are *R. flammea* and *R. immaculata*.

SANGUINARIA.—A pretty small dwarf hardy spring-flowering tuberous plant, with cup-like many-petaled white blossoms adapted for pot culture or the borders. When planted in autumn, it may be kept tolerably moist, yet dormant, in a cold frame till spring. It thrives in all good garden soils. The common species are *S. canadensis* and *S. grandiflora*.

SAUROMATUM.—A highly ornamental warm greenhouse tuberous herbaceous plant, allied to *Amorphophallus* and *Arum*, the species most usually grown being *S. guttatum*. The flower-cup or spathe (enclosing the spadix or flower column) is the most remarkable part of the plant; it appears in the early spring months in the form of a long ovate-lanceolate strap-shaped leafy organ of a sub-leathery texture, somewhat cucullate at the base, and attenuated at the apex, from twelve to eighteen inches in length, and from the base very picturesquely marked with rich orange spots, which, as they proximate upwards, lessen in size but become more dense, and gradually change from the high orange tints to a greenish yellow, and finally blend into an opaque brown towards the narrow pointed tip. As this singularly beautiful floral envelope fades away and falls off, the large robust and erect petiole or leaf-stalk, rises from the crown of the tuber to nearly two feet in height, forming an attractive feature by its pallid green hue, elegantly marked with dark olive-green bars, or spots from the base upwards, and terminating in a large flat horizontal leaf blade, assuming a semi-circular outline, and formed of large ovate-lanceolate leaf lobes, six to nine inches in length, arranged in a sub-pedate manner. Though a species inhabiting a tropical climate, it appears to accommodate itself to a comparatively low temperature, judging from the vigorous condition of several plants transferred out of pots to the open air flower beds in June, and which presented a very interesting appearance up to a late period. After the season's growth, the tubers should be re-potted and preserved in a dry state within a warm green-house until the following spring.

SCILLA.—One of the prettiest families of early spring-flowering hardy bulbs, adapted to all good light garden soils. They may be planted from October to December. The various species form beautiful groups, or marginal rows, in select parterres or flower beds. The predominant colour is blue, whilst the dwarf compact growth of most of the species adapt them to the smallest and most select collections of plants. They are also very effective for pot culture, if grown with from four to six bulbs in each pot. Their brilliant tints of azure and porcelain blue are perhaps unequalled in any other family. The following species and varieties will make a good selection:—*S. bifolia* and *bifolia alba*, *S. campanulata* and *campanulata alba*, *S. lusitanica*, *S. nutans albo-superba*, and *nutans carnea*, *S. patula*, *S. sibirica*, *S. præcox*, *S. peruviana*, and *peruviana alba*. The last-named species, with its white variety, is of a fine distinct habit, with large ovately-hemispherical heads of starry blossoms.

SINNINGIA.—A very pretty genus of dwarf hothouse tuberous plants, closely allied in habit and growth to *Gloxinia*, but differing from that well-known family by retaining a sub-evergreen habit. In culture they require equal portions of sandy loam and peat. The tubers are obtained in the autumn and winter, and if such are kept in nearly a stationary condition, and re-potted in spring, the retarded growth will be found favourable for after management. *S. guttata* is a very pretty species.

SNOWDROP.—See Galanthus.

SNOWFLAKE.—See Leucojum.

SPARAXIS.—A genus of beautiful dwarf plants related to *Ixia*, and consisting of small half-hardy and greenhouse bulbs, with a similar habit of growth to that of the genus just referred to, and requiring exactly similar treatment. The racemes of bloom are shorter, but the blossoms are larger and of very rich and beautiful colours. Amongst the finest kinds are *S. tricolor*, *S. tricolor grandiflora*, *S. tricolor maculata*, and *S. rosea punctata*.

SPREKELIA.—This genus is represented by the well-known Jacobea Lily, *S. formosissima*—an Amaryllis-like bulb adapted for green-house culture, and requiring a compost of three parts loam to one of peat. The treatment includes a season of perfect rest during winter, the plants being again stimulated to growth from February until April for summer bloom. When the bulbs are procured in autumn they may be potted, or otherwise, but preserved dormant, and kept from frost until spring. The beautiful rich crimson flowers are readily produced in the greenhouse by succession bulbs throughout the spring or summer months.

STAR OF BETHLEHEM.—See Ornithogalum.

STERNBERGIA.—A genus of very pretty autumn-flowering hardy bulbs, growing freely in all good garden soils, and blooming profusely in October and November. The bulbs may be planted in the early autumn months, or in March. The gay Crocus-like blossoms of *S. lutea* are lively features in the garden at a season when flowers are getting scarce.

STRUMARIA.—A small half-hardy or greenhouse bulb, allied to *Nerine*, requiring very similar soil and treatment. *S. crispa* is a summer flowering species, and should, after its bloom, be continued in growth to obtain a vigorous leaf development, after which a thorough dry rest, previous to its renewed stimulus for bloom, is essential. Its flowers having narrow, rosy-lilac, and somewhat undulated petals, are interesting in their season.

TIGRIDIA.—A genus of well-known and very beautiful half-hardy or greenhouse Mexican bulbs, growing well in all good light garden soils, and suitable either for groups in the flower gardens, or for pot culture, being summer-blooming plants. They require to be dried off on the approach of frost, and kept dry until April or May, at which period they are either potted in sandy loam and leaf mould, from three to six bulbs in each pot, or planted in May as groups in the flower borders. The large brilliant orange-scarlet flowers of some varieties, and the rich golden-yellow ones of others, render them very gay and attractive during the mid-summer months. The most generally cultivated kinds are *T. conchiiflora*, *T. Pavonia*, and *T. Wheeleri*.

TRICHONEMA.—This genus comprises several small hardy and half-hardy grass-leaved bulbs, requiring treatment and soil similar to *Ixia*, *Tritonia*, *&c.* The blossoms are of rather short duration, but their rich rosy crimson and purple tints are extremely pretty. The principal species in cultivation are *T. Bulbocodium*, *T. Columnæ*, *T. cruentum*, and *T. speciosum*. These species are sufficiently hardy to admit of being planted in the open air beds about April or May, using equal portions of peat and loam. In the early autumn, the bulbs should be housed dry, until repotted in September or October.

TRILLIUM.—A genus of neat, hardy, tuberous-rooted plants, thriving in borders of sandy fibrous peat, or by pot-culture in pits. *T. grandiflorum*, with its large conspicuous three-petaled white blossoms, is the finest species. It requires a partial rest through the winter in cool pits, or to be slightly protected over the surface where planted.

TRITELEIA.—A genus of half-hardy or cool greenhouse bulb-like tubers, requiring sandy loam and small portions of peat or heath-mould. The bulbs may be planted in the late autumn months, and preserved through the winter with Ixias, &c. After the early summer bloom they are allowed to rest until re-potted. The lilac-blue tinted blossoms of *T. uniflora* are pretty as a relief when grown amongst more highly coloured flowers.

TROPÆOLUM.—A beautiful genus of half-hardy and greenhouse bulbs, having twining stems, and suitable for conservatory decoration and flower-garden display. The whole of the species grow well in rich porous loam, well mixed with one-third of sandy peat and leaf-mould. Those best adapted for pot culture are the greatly admired *T. azureum*, *T. brachyceras*, *T. tricolorum*, and *T. Jaratti*. These should be planted from September to November, and continued in growth, the stems being trained upon light wire trellises until the blooming season, after which the bulbs are to be allowed a dry rest for two or three months until repotted in autumn. The finest half-hardy species are *T. pentaphyllum*, *T. polyphyllum*, *T. speciosum*, and *T. tuberosum*. These are admirably suited for summer display on flower-garden walls and open-air trellis-work, where they may remain for successive years' growth, with surface protection for the tubers until spring, or otherwise they may be taken up, and kept in a medium dry state within a cold frame, or preserved in open boxes of sand until required for potting or replanting in April or May.

TYDÆA.—An invaluable group of summer, autumn, or winter-flowering hothouse plants, separated from *Achimenes*, and comprising those plants of suffruticose or half-shrubby habit, which have a character intermediate between that genus and *Gesnera*. The various kinds grow well in equal parts of loam, peat, and heath-mould, and are obtainable either in the form of tubers or plants during the autumn and spring months. The summer flowering species and varieties are kept dormant until early spring and carried forward in growth until autumn: then gradually and fully rested during winter until the period of repotting. This section contains varieties with very beautiful tubular blossoms with an expanded mouth, the colours bright rose, carmine, and scarlet, richly banded and speckled with violet-crimson; and is represented by *Amabilis*, *Auber*, *Bella*, *Comte de Flandres*, *Duc de Brabant*, *Duchesse de Brabant*, *Eeckhautei*, *Meteor*, *Princess Charlotte*, and *Wilhelmina Lefevre*. The second section comprising those kinds which are strictly of a fruteseent and branching habit, are started into growth successively in the spring months either from the matured tubers or from cuttings, and are carried on in growth by succession plants and the aid of root-warmth through the late autumn months into spring. These kinds are invaluable for decorative purposes in mid-winter, their brilliant scarlet, rose, and carmine-crimson tubular flat-limbed blossoms, picturesquely banded and freckled with dark violet-crimson, being very ornamental. To this group belong the beautiful varieties called *Beauty*, *Elegantissima*, *Elizabeth*, *Gigantea ignea*, *Harlequin*, *Ignescens*, *Lady Caroline Kerrison*, *Lady Digby*, *Lisette*, *Lurline*, *Œnochroa*, *Pardina*, *Pearl des Tydæa*, *Princeps*, and *Rebecca*.

VALLOTA.—This is one of the most useful of autumn-flowering greenhouse bulbs, scarcely distinguishable from *Amaryllis* in its style of growth, and thriving in three portions of loam and one of sandy peat or leaf-mould. The species *V. purpurea*, formerly known as *Amaryllis purpurea*, bears on its flower scapes a head of brilliant red funnel-shaped blossoms, which are very effective and beautiful. As a portable specimen under pot culture this plant is admirably adapted for decorative purposes in the drawing-room conservatory, or flower-garden glass promenade. Bulbs obtained in autumn, if dormant, should be carried forward with gentle heat, and allowed to continue their leaf-growth throughout the year.

VIEUSSEUXIA.—*V. glaucopis* is a highly interesting small half-hardy bulb, requiring soil and treatment similar to the *Ixia*, &c., together with protection from frost in a cold pit until spring, and then, if required, to be moved to the greenhouse for bloom. The bulbs should be planted four or more in each pot. The plants, which are sometimes called *Iris Pavonia*, are finely effective in contrast with other bulbs. The elegant three-lobed white blossoms with a sky-blue cloud-like spot toward the base of each petal are very picturesque and beautiful.

WATSONIA.—An ornamental genus of half-hardy bulbs, closely allied to *Gladiolus* in style of growth, and also in their general treatment. If planted from six to nine inches deep in a deep dry loamy border with surface protection in winter, a majority of the species will perfect their attractive flower scapes of showy orange flame and rose coloured blossoms during the early summer and autumn seasons. They may be planted from October to December, and either allowed to remain for permanent growth, or transplanted every three or four years. The species most generally cultivated are *W. fulgida*, *W. humilis*, *W. marginata* and *marginata rosea*, *W. rosea*, and *W. speciosa*. If required for pot culture, the management recommended for *Gladiolus*, *Ixia*, &c., will be applicable.

ZEPHYRANTHES.—A very pretty genus of small summer and autumn-blooming bulbs, principally of a hardy character or requiring greenhouse treatment; they produce trumpet-shaped blossoms, and grow well in three parts loam and one of sandy peat and leaf-mould. The most hardy species, *Z. Atamasco*, *Z. candida*, and *Z. rosea*, with white Crocus-like blossoms before expansion, may be planted in early autumn, or potted with Ixias, &c., to be planted out in spring. The half-hardy or greenhouse section, *Z. elegans*, *Z. glabra*, *Z. mesochloa*, *Z. pratensis*, and *Z. spofforthiana*, are obtainable for potting in autumn, but may be kept dormant in the greenhouse, or protected in a cold pit until spring, and then repotted or stimulated to growth.

*** The attention of bulb-cultivators may also be directed to the additional notes on cultivation preceding the enumerated lists of the leading kinds of bulbs, in Messrs. E. G. Henderson & Son's Bulb Circular, which is issued annually in September. The principal kinds therein treated on are Hyacinths*, Tulips, Liliums*, Amaryllis, Cyclamen*, Achimenes* and Tydæa* Gladiolus*, &c., &c.; while of those marked (*) still more extended practical and descriptive notes will be found in the first and second volumes of The Illustrated Bouquet, a book of Floral Illustrations devoted to showy and popular flowers, and published in quarterly Parts. This periodical contains first class figures either of a species or of a group of varieties of each of the genera above referred to, together with descriptive notes of the best species in each genus.

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AND

DESCRIPTIONS OF PLANTS.

**** The Names of the Plants figured are printed in small capital letters.*

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Beauty	LXI.	2

	PLATE	FIG.
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PRIMULA—		
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Countess of Haddington	LXXXII.	
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Titien	LXX.	1
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TULIP—		
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WINTER BLOOMING HOTHOUSE PLANTS—	LXXV.	

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Ardisia crenulata
crispa
Begonia fuchsioides
insignis
parvifolia
manicata
semperflorens major
Bignonia venusta
Bilbergia thyrsoidea
Calliandra hæmatocephala
Canna Warscewiczii
Celosia pyramidalis
pyramidalis aurea
Centradenia grandifolia
Clerodendron splendens
Cyrtodiera cupreata
cupreata viridifolia
Epiphyllum truncatum
varieties of
Eranthemum pulchellum
Euphorbia jacquiniæflora
punicea
splendens
Franciscea uniflora
Gardenia citriodora
Gardenia florida
radicans major
Gesnera densiflora
cinnabarina
Cliftoni
elongata
Heterocentrum mexicanum
Hexacentris mysorensis
Imantophyllum miniatum
Impatiens latifolia alba
Ipomœa Horsfalliæ
rubro-cœrulea
Jasminum grandiflorum
Manettia bicolor
Maranta sanguinea
Mussænda frondosa
Passiflora racemosa
Pentas carnea roseo-kermesina
Plumbago rosea
Poinsettia pulcherrima
pulcherrima alba
Strelitzia reginæ
Thyrsacanthus rutilans
Torenia pulcherrima
Tydæa gigantea
Vriesia splendens

Mrs Withers, Delt.

CONVOLVULUS MAURITANICUS.

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PLATE XLVII.

CONVOLVULUS MAURITANICUS.

AMONGST the various devices for the decoration of conservatories and greenhouses, that of suspending ornamental trailing plants in light baskets, vases, &c., is one specially adapted for the adornment of the space overhead, which, where the houses are elevated, is apt to remain unfurnished. These baskets, with their gracefully drooping wreaths and festoons, afford an elegant relief to the gay forms of erect growth seen on the platforms and stages beneath; and their decorative effect may be taken as proportionate to the elevation of the structures in which they are employed, as has been admirably illustrated in the numerous and beautiful specimens which have been cultivated in this way at the Crystal Palace.

Though the varieties of plants strictly adapted for this mode of cultivation are not numerous, yet the increasing demand for them bears witness to the interest they excite, and testifies, moreover, to the development of high taste in the artistic adornments of garden structures. During the prevalence of the old-fashioned lean-to plant-houses, which in many instances were of too low an elevation to admit of suspended growth in any form, the class of plants to which these remarks refer was comparatively neglected, being only seen here and there occasionally, and then generally placed on side-wall shelves or brackets. The improvements which have taken place in plant structures have been accompanied by a correspondent advancement in respect to cultivation; so that at the present day, whether such structures represent the more spacious lean-to design, the curvilinear span, or the dome-like elevation, means have been found to provide appropriate decoration.

Such has been the improvement in the ordinary routine of pot culture throughout all sections of plants, that the opinion may be hazarded, that only one other mode of plant cultivation requires a more perfect development in order to impart to our plant structures an air of graceful beauty unknown under the formal arrangements which have hitherto prevailed. We think it may be inferred, that ere long one of the most remarkable of modern improvements in decorative gardening will be seen to consist in the general adoption, and thorough adaptation to the improved designs of horticultural structures, of *aërial culture*, by which is meant the growth of plants in suspended baskets, &c.

Amongst the recently introduced plants suitable by their habit for vase or basket culture, that now illustrated is one of the most appropriate and pleasing. It forms a half shrubby trailing plant, with peculiarly neat well branched slender stems, which are clothed with roundish oblong leaves, from whose axils proceed, during the summer and autumn months, a profusion of very elegant light blue salver-like blossoms, an inch or more in diameter. It is also unique and effective as a bedding plant, or as an outer belt to clumps of flowers, and it appears to great advantage when planted on the summit of low stone mounds. Though slender, the plant is of a healthy habit, breaking freely into lateral growth, and blooming profusely from the side branches. Thus, by securing a prolific formation of leaf buds before the summer months arrive, this will prove a charming plant for almost any position favourably exposed to light, in the open flower-garden, or in the conservatory.

CONVOLVULUS MAURITANICUS.

Being a cool greenhouse plant, the most vigorous specimens should, after the season's growth is over, be carefully re-potted from the open beds, and protected through the winter in an airy greenhouse or pit, and in the early spring they should be pruned back proportionately to their vigour. Young plants raised during summer, for blooming during the ensuing season, require treatment similar to that given to Petunias or Verbenas.

The following selection of plants will indicate some of those which are suitable for suspended baskets, vases, &c., as their growth may be stimulated to the desired length by exposure to a genial temperature, or restricted by the usual method of pinching the foreshoots as in pot-culture:—

SECTION I.—Plants of dwarf branching habit, slightly drooping, specially adapted for the outer margins of baskets, &c.

Campanula Barrelieri
„ *fragilis*
„ *garganica*
Epiphyllum truncatum
Gazania splendens
Heliotropium La Petite Negresse
Heliotropium Jean Mesmer.
Isolepis gracilis
Koniga maritima variegata
Lycopodium denticulatum
Linaria Cymbalaria flore-albo
„ „ *variegata*
Lobelia Erinus speciosa
„ *bicolor* (*gracilis*)
Lysimachia nemorum
Nierembergia filicaulis
Sedum Sieboldii
Sibthorpia europæa

SECTION II.—Plants of drooping growth, nine to twelve inches or more in length.

Antirrhinum linariæfolium
Convolvulus mauritanicus
Cyanotis vittata argentea (*Tradescantia*)
Disandra prostrata
Gazania uniflora
Pelargonium ivy-leaved: scarlet and pink flowered and silver-edged leaved
Saxifraga sarmentosa
Saxifraga cuscutæformis
Verbena Maonetti
Vinca minor: gold-edged and silver-edged leaved

SECTION III.—Plants of pendent growth, twelve to eighteen inches or more in length.

Cereus flagelliformis
Fragaria indica
Lophospermum scandens
Lysimachia Nummularia
Pelargonium ivy-leaved: white-flowered, and gold-edged and silver-edged leaved
Russelia juncea
Tropæolum atro-coccineum
„ *Attraction*
„ *Brilliant*
„ *elegans*
„ *Florence*
Tropæolum Meteor
„ *Miss Nelson*
„ *Stamfordianum*
„ *versicolor*
Thunbergia aurantiaca
Vinca elegantissima: silver-edged

SECTION IV.—Plants of strictly climbing habit, from two to four or more feet in length, adapted for large baskets and lofty houses as drooping plants, or suitable for lateral training or festooning on cross bars and trellis-screens.

Calystegia oculata
„ *pubescens fl. pleno*
Cobæa scandens
Lophospermum coccineum
Maurandya Barclayana
„ *kermesina*
Mikania scandens
Rhodochiton volubile
Tropæolum aduncum (*canariense*)

The most continuous display from plants in baskets is obtained from such groups as are well established by preparatory growth in a genial warm temperature for some weeks previous to the season of bloom. Uniform attention to watering is moreover very important in establishing growth, in order to avert the injury arising from exposure to air-currents, or extremes of cold and heat. A partial diminution of temperature is required in the autumn and winter months, also uniform attention to moderate watering until the early spring season, when the degree of moisture may be gradually increased with the higher temperature in which the growth is stimulated. Where only temporary summer decoration is required, a gay effect may be produced by a suitable arrangement of ornamental greenhouse plants, such as Fuchsias, Geraniums, Verbenas, Tropæolums, for centre groups, margined with others of dwarf and pendent growth; but where permanent effect is sought, a suitable selection may be made from the lists now given.

Mrs Withers, Delt.

TROPÆOLUMS.

Printed by C. Chabot.

1. Perfection.
2. Nigricans.
3. Luteum Sanguineum.
4. Gauntlet.
5. Indispensable.
6. Meteor.

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PLATE XLIX.

NEW GARDEN TROPÆOLUMS.

THE well-known garden Nasturtium has within the last few years attracted much interest in consequence of the advance it has made in attractiveness and suitability for garden decoration, so that by reason of its profusion of gay-coloured blossoms, it now successfully competes with our most ornamental flower-garden subjects.

For a considerable period the well-known annual species, *T. majus*, was the only summer-flowering kind which adorned the flower-garden, and it was probably only by selecting the progeny of the richest coloured seminal varieties through a series of years, that the first really distinct variety known as *atrosanguineum*, was obtained. Other brilliant scarlet and orange-coloured varieties were procured by careful attention to the more promising seminal kinds annually produced, but these all partook less or more of the gross vigour and scandent habit of the parent stock.

It was not until the introduction of the beautiful half shrubby winter-flowering greenhouse species, *T. Lobbianum*, that a more valuable race of hybrid varieties, principally distinguished by neater and more slender growth, with smaller foliage, was obtained; and it is principally to this species that we are indebted for the many ornamental varieties which now adorn the garden. From this source nearly the whole of the under-mentioned kinds have sprung, part of them partaking in some degree of the robust growth of *T. majus*, but the larger portion having instead of this the neat almost suffruticose habit of *T. Lobbianum*—which, with its best varieties, when treated as a conservatory or warm greenhouse plant, yields a continuous succession of brilliant orange, scarlet, and crimson-tinted blossoms during the months of autumn, winter, and spring. There are others of more diversified features, with spotted or blotched-petaled flowers, of which *T. Moritzianum* and *T. crenatiflorum* are the probable types, and these by cross impregnation with *T. Lobbianum* have given rise to a variety of yellow, bronze, and orange-yellow flowered hybrids, prettily spotted with red or crimson blotches and rays. These latter, though less showy than those of the *Lobbianum* section, afford a pleasing variety for greenhouse culture, and for covering out-door trellis-work.

The group represented in the accompanying plate consists of a selection of varieties of English origin, distinguished by their brilliant colours, and profuse succession of bloom. In their short-jointed growth the parent plants showed themselves well adapted for bedding groups, for vases, and for the decoration of low walls. The comparative scarcity of golden yellow varieties is supplied by two fine kinds in this selection :—

Fig. 1. T. Perfection.—Brilliant scarlet, with central dark veins; fine form with great substance and profuse bloom; a splendid variety for groups or beds.

Fig. 2. T. nigricans.—Richest dark velvet crimson, with soft yellow throat; a fine bedding kind.

Fig. 3. T. luteum sanguineum.—Rich golden yellow, with conspicuous brown-crimson blotch on each petal.

Fig. 4. T. Gauntlet.—Bright straw-colour, richly marked with large crimson blotches.

Fig. 5. T. Indispensable.—Bright golden yellow, of medium size, with picturesque red-crimson blotches.

Fig. 6. T. Meteor.—Very brilliant crimson, shaded with scarlet, and flushed with rich dark velvet on the base of each petal.

NEW GARDEN TROPÆOLUMS.

The following varieties in addition to the foregoing form a selection of the most appropriate kinds for decorative purposes :—

T. atrococcineum : beautiful crimson-scarlet, robust habit, and rich green leaves.

T. Attraction : bright orange-tinted scarlet, good habit and profuse bloom.

T. Brilliant : brilliant scarlet, fine habit, with profuse bloom.

T. Distinction : fine straw colour, with rich crimson blotches, good size, and free bloom.

T. elegans : orange-scarlet, good form, and profuse bloom.

T. Florence : elegantly shaded bronze-salmon, with flame-scarlet blotch and primrose centre, distinct and free bloom.

T. Garibaldi : a very fine high-coloured variety, style of *T. elegans*, very effective.

T. Large double dark Crimson : robust habit, with large very rich crimson flowers.

T. majus fl.-pleno : large double orange-scarlet, gay and effective.

T. minus : a neat small species, with yellow and crimson flowers.

T. minus coccineum : a scarlet-flowered variety, of dwarf habit.

T. minus fl.-pleno : neat dwarf species, with bright orange-scarlet double flowers of medium size.

T. Stamfordianum : an improvement upon *T. elegans*, with a profusion of medium-sized bright orange-scarlet blossoms of fine form.

T. Tom Thumb, scarlet. A densely-branched and roundly-compact dwarf plant, with brilliant scarlet flowers.

T. Tom Thumb, spotted. Similar in growth to the foregoing, with numerous brown spotted blossoms.

T. Tom Thumb, yellow. Equally compact and picturesque as the preceding, with a profusion of yellow bloom.

T. Triomphe de Gand : rich scarlet, good twining habit, and continuous winter bloomer.

T. versicolor : golden-yellow, with picturesque orange-red blotches.

The following selections will be found suitable for the purposes specified :—

Fine bedding varieties : *Perfection, luteum sanguineum, Gauntlet, Indispensable, elegans, atrococcineum, Stamfordianum, minus flore-pleno, majus flore-pleno, Garibaldi.*

For open-air trellises or wire pillars or screens : *atrococcineum, Stamfordianum, versicolor, Triomphe de Gand, Brilliant.*

For wall culture : *nigricans, atrococcineum, Stamfordianum, elegans, Meteor, Garibaldi.*

For conservatory and greenhouse rafters, as winter-flowering kinds : *Triomphe de Gand, Brilliant, versicolor, Meteor, Distinction, Florence, Perfection, atrococcineum.*

For pot culture in smaller greenhouses : *Brilliant, versicolor, elegans, minus flore-pleno, majus flore-pleno, Large double dark Crimson, Gauntlet.*

For belts or broad margins those recommended for bedding are suitable, but for smaller low detached groups or tufts without training : *Tom Thumb* in its different colours obtainable from seed, *minus, minus coccineum.*

For vase or large pot culture : *luteum sanguineum, Indispensable, Meteor, atrococcineum, minus flore-pleno, majus flore-pleno, Large double dark Crimson.*

The whole of these varieties thrive in a similar soil to that required for Pelargoniums, Verbenas, &c. The main points of management in the fine beds at the Crystal Palace are, first, the use of a poor, barren soil, mixed with coarsely-riddled rubbish for planting in, so that by avoiding ordinary rich materials the growth is more favourable for the formation of bloom-buds than leaf growth, and the tendency to excessive vigour, which it should be the object of the gardener to avoid, is prevented ; and secondly, attention to pegging down the stems, and constantly picking off the full-grown leaves and stalks, thereby restricting the gross habit of growth, and admitting a more direct influence of air and sun-light favourable for the formation of lateral growth and flower-buds. By observing this mode of treatment, many of the vigorous-growing kinds of Nasturtium may be brought out in great beauty. The half-shrubby and climbing kinds are equally adapted for pot or ground culture in the summer months, if their growth is judiciously restricted or stimulated ; and they are admirably suited for ornamental trellis-work, whether pillar-like, or the low wicker-work surrounding flower-beds or baskets. They rank amongst the most attractive of plants for wall culture, their prolonged season of bloom rendering them invaluable for autumnal decoration. The dwarfer growing ones, of sub-climbing habit, are admirably adapted for bedding or large groups, and by judiciously restraining the growth, and training the shoots uniformly over the surface, a regular formation of bloom-buds is obtained throughout the season. For winter bloom solely, the fine varieties of *T. Lobbianum* are the best and most certain substitutes for the scarlet winter-flowering Pelargoniums, and they are invaluable where portable flower-baskets or drawing-room vases have to be supplied with cut flowers.

The most remarkable deviation of growth and habit in this showy family is found in the singularly dwarf and compact varieties forming the "Tom Thumb" section, in which the entire absence of the climbing habit and elongated growth proves a permanent and desirable feature. These varieties are very effective in forming detached groups in flower borders, and are also useful in the ribbon system of arranging flower-beds.

Miss Sowerby, Delt.

HORSE-SHOE PELARGONIUM.

Princess of Prussia.

Printed by C. Chabot

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PLATE L.

PELARGONIUM ZONALE: PRINCESS OF PRUSSIA.

THE numerous seminal varieties of so-called Bedding Geraniums, or Pelargoniums, which have been produced by cultivators both in English and continental gardens, in the endeavour to supersede the older kinds by others of superior merit as regards growth and bloom, have by degrees assumed such diversity of aspect, combined with the peculiar excellencies for which they are chiefly prized, namely, their more brilliant colours and their greater prolificacy of bloom, that it has become necessary to increase the sections in which it has been found useful to classify them, for the guidance of amateur cultivators in their annual purchases of newer kinds adapted to the diversified requirements of extensive flower-gardens.

Perhaps no tribe of flowers has contributed so rich and valuable a share of decorative materials for summer flower-gardens as the one which the accompanying plate is intended to illustrate. The proverbially long-continued bloom of Bedding Pelargoniums, affording a continuous display throughout the summer months, and their adaptation to all ordinarily good loamy soils of tolerably firm texture: in a word, their easy culture and gorgeous effect, are properties which render them invaluable in modern gardens.

Beautiful and effective as are the brilliant hues of the old scarlet-flowered forms of *Pelargonium zonale* and its allies, and essential as they are, in a subordinate degree, to the massed splendour of all well-furnished flower-gardens, an increasingly cultivated taste in relation to the true harmony of colours has of late caused a demand for an accession of permanent intermediate or secondary colours to relieve the monotonous effect of the large masses of scarlet and red, which for a considerable period predominated almost to the exclusion of any relief tints. The defect which had thus become evident in flower-garden arrangements, is now being, to a very considerable extent, remedied by the introduction of many beautiful hybrid varieties of plants for grouping—plants affording such rich variations in growth and in the colour of their blossoms, as to be efficiently adapted to the requirements of the most diversified arrangement of flower-beds. And whilst the reaction of a higher knowledge and application of garden architecture as an art, based upon a recognition of established principles in relative harmony, has thus led to a correspondingly correct view in garden decoration, it is equally certain that practical horticulture in its varied branches has zealously wrought out, by the production of cross races in flowers, ample means whereby to carry out the most elaborate designs of floral embellishment, whether these means are required for the artistic designs of suburban residences, or the more magnificent arrangements of a national garden, with its broad acres of flowers and its avenues of perennial verdure.

The variety which is here figured, called *Princess of Prussia*, affords an exceedingly fine example of the *Compactum* section. In growth it is of a well-branched habit, with moderate vigour, and its green-leaf surface is

marked with the obscure brownish-purple zones which distinguish what are known as the Horse-shoe or Zonate varieties, which have sprung from *P. zonale*. The remarkably compact and rounded trusses of flowers, stand erect above the foliage, and the blossoms are of a bright orange-tinted scarlet on the upper surface, and rosy-scarlet beneath. Each truss contains from fifty to sixty blossoms, which are retained upon the flower-stem until the whole are expanded, a feature which is of great value in all flowers intended for groups or for vase culture. Its prolificacy of bloom, its brilliant colour, and the globular outline of its flower heads, distinguish it from all existing varieties. These properties, and its adaptation to occupy a conspicuous position as a back-ground bed or group in the flower-garden, give it a special value for decorative purposes.

The various sections of this race of Pelargoniums, adapted for flower-garden decoration, may be best recognised as regards their application to this object, by the more obvious distinctions afforded by colour. In the subjoined selection the principal varieties enumerated are of proved merit for their bedding properties.

ZONALE, OR HORSE-SHOE-LEAVED, AND PLAIN-LEAVED SECTION.

Dwarf Scarlet.—Attraction, Tom Thumb, Little David, Pauline, Indispensable.

Scarlet, with White Flower Stalks.—Sheen Rival, Wonderful, Cerise Unique.

Scarlet, with White Eye.—Vivid, Wellington Hero, Scarlet Globe, Eclipse.

Scarlet of robust habit, (for Walls, &c.)—Defiance, Scarlatina, Empress of France.

Carmine.—Lady Smythe, Emile Dufoy, Mrs. Lawton.

Rose.—Beauté de Parterre, Trentham Rose, Comte de Morny.

Rosy Salmon.—Countess of Bective.

Salmon, with White Margin.—Monsieur Legouve.

Pink.—Christina, Princess Royal, Pink Tom Thumb, Madame Marseaux, Paul Labbé, Consuelo.

White, with Salmon or Rosy Salmon centre.—Henri de Beaudot, President Wood, Anthony Lamothe, Frederick Desbois, Augustine Nivelet, Virginea Lebeau, M. Henri de Blecourt, Chameleon.

White Selfs.—Madame Vaucher, Auber Henderson, Candidissima, Comtesse de Chambord.

COMPACTUM SECTION OF P. ZONALE.

Orange-tinted Scarlet.—Princess of Prussia.

NOSEGAY SECTION, OR VARIETIES FROM P. FOTHERGILLI.

Carmine-crimson and Lake, with Purple and Pink Tints.—Imperial Crimson, Carmine Nosegay, Model Nosegay, Nosegay Stella.

White.—Hendersoni Nanum. This beautiful variety is a decided improvement upon the well-known Hendersoni, which for a considerable period was the most reliable White Bedding Geranium known. The present is of a dwarfer and shorter jointed growth. The more prominently crenated or notched leaf-margins, and its green flower pedicels or foot-stalks, which in the older variety are reddish, as well as the uniformly white petals, sufficiently distinguish the present variety, apart from its superior style of growth and greater profusion of bloom, which qualities render it specially valuable for garden decoration in large beds or groups.

Mrs. Withers, delt.

DIANTHUS HYBRIDUS MULTIFLORUS.

ILLUSTRATED BOUQUET.

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PLATE LI.

DIANTHUS HYBRIDUS MULTIFLORUS.

THE accompanying Plate represents a new Many-Flowered Hybrid or Mule Pink, one of the most ornamental and desirable of herbaceous plants for decoration in masses yet offered for flower-garden cultivation. It will be seen, that in its general features it is similar to the well-known section of Hybrid, or Mule-Pinks, long recognised in English gardens as a race of attractive summer-flowering border plants.

The flower stems of the present new variety grow from twelve to sixteen inches high, whilst the herbage forms a dwarf vigorous tuft, with closely-set carnation-like leaves of a dark-green colour. It differs from, and is much superior to, all known varieties of Mule Pink, in being more suffruticose at the base, and more perennial in habit, as well as in its property of yielding a succession of flower-scapes: in fact, showing something of a perpetual blooming character, and thus continuing for a much longer period in bloom. During the early summer months it makes a strong many-crowned, tufted growth, followed by a successive development of upright stems, terminating in large corymbose heads of flowers, the individual blossoms opening, as the figure pourtrays, of a light rosy carmine and changing to a rich rosy-crimson. These flowers are sweet-scented, and semi-double, each measuring about one inch and a quarter across.

This plant retains its beauty for a very considerable period, namely, from June until November, and thus, its habit being compact and its blossoms ornamental, unites in itself the most essential features of a first-class bedding plant. Its free healthy habit, yielding a very ready increase by cuttings from established plants, and its natural tendency to produce flowers to the latest period of growth yielding a prolonged display, are invaluable features in a plant otherwise well adapted for decorative purposes; whilst by potting the strongest plants in autumn they are, when fully established in pits or frames, well suited for early forcing for the ornamentation of the conservatory and greenhouse. Thus, by its perpetual blooming character, producing its large fragrant bouquets for some time after the usual races of bedding flowers are past their prime, it still forms an attractive feature amid the fair and fading blossoms which conclude the season. For large beds and groups, where diversity of feature and colour is required, it is invaluable; and for medium-sized flower beds it is unequalled as a centre group in consequence of the property already adverted to, of its continuing in bloom until the approach of winter; whilst, for pot-culture, it is extremely useful, forming portable specimens for conservatory and greenhouse embellishment from December until March.

As to its hardiness, it is expected to endure cold better than any variety in its section; but at present it is too valuable to be risked in the open border. The usual protection of a dry frame or pit has been found sufficient for preservation until spring. After the usual early stimulated spring growth for obtaining the first cuttings, the plants may be again stimulated to renewed growth and progressively hardened off previously to planting out in May.

The general features of excellence combined in this plant render it equal for flower-garden decoration to the Verbena, the Gazania, or the Rose. The exceeding neatness of its growth, its long duration in bloom, and its comparative immunity from injury from excessive rain-falls or adverse seasons, are some of its chief recommendations. Its adaptation to common garden soils of ordinary fertility gives it additional value.

DIANTHUS HYBRIDUS MULTIFLORUS.

Few plants have been more thoroughly appreciated than those of the Dianthus tribe, many of which, as is well known, bear charmingly fragrant flowers. It is to be hoped that, by fertilising with the sweet-scented kinds, many hardy odorous varieties may be obtained, having the qualifications which render our present subject desirable as a garden plant. The species which have given origin to the chief popular races in this family, are *Dianthus Caryophyllus* and *D. plumarius;* the first being the original of the sweet-scented Clove, in its various forms, and also of the bizarre or striped-flowered and bordered varieties known as Carnations and Picotees; and the second having originated the well known and greatly admired race of garden Pinks. The original types of these groups are distinguished by a rich odour, which is continued in their progeny. It is desirable that those cultivators who are in quest of materials out of which to mould beautiful hybrids, should make use of such species of distinctly-featured habits, in order that the intermediate hybrid varieties produced, may combine, along with desirable improvements in respect to their style of growth, or of bloom, the additional qualification of fragrance.

As many of the beautiful true hybrid varieties of Pinks do not produce seed, and are difficult to multiply in consequence of their forming but few leaf crowns or stems, it may be of some interest to amateur cultivators to suggest the best means of perpetuating the parent plants, or of facilitating their multiplication. The means to be used are very simple: namely, either to restrict the duration of bloom in varieties of this spare habit, by cutting back the flower-scapes, and thus to afford a stimulus to late summer growth; or else to adopt the still more severe process of confining the plants entirely to leaf-growth, by removing the flower-scapes altogether as they appear, and thus to cause a more vigorous development of lateral growth from the base, and in this way to produce materials for propagation. Whilst the kind now figured forms a striking exception to the above treatment, cultivators will recall to mind the brilliant hybrid varieties known some years ago as *D. fulgens,* and *D. Hendersoni,* now almost, if not altogether, lost to the gardens, as kinds requiring a strict application of these rules.

...hers, del.t

Vincent Brooks, lith

ARIEGATED PELARGONIUM.

CLOTH OF GOLD.

ILLUSTRATED BOUQUET.

PLATE LII.

VARIEGATED PELARGONIUM: CLOTH OF GOLD.

THOUGH much improvement has been effected among the many ornamental plants of comparatively modern introduction employed for the decoration of the flower-garden, there are perhaps none so picturesque in character, and so deservedly popular, as those varieties of Pelargonium, or Geranium, which have golden and silver-edged leaves: certainly none which, taking the aggregate number of kinds, have been to so great an extent adopted in working out ornamental designs in flower-garden and pleasure-ground scenery.

The variety which forms the subject of the accompanying plate, Pelargonium *Cloth of Gold*, is a highly decorative one, of a free dwarf bushy habit of growth, its obscurely hairy-surfaced stems and leaves without any perceptible dark zone, distinguishing it from the generality of similar varieties which have smooth surfaces. It is also specially marked by its exceedingly dense-leaved habit throughout summer and winter, the foliage being so evenly expanded as to show a flattened table-like surface, exposing fully to view the broadest bright yellow belt or margin yet known. In addition to this, it has well-formed trusses of rich crimson scarlet blossoms. In its adaptation to decorative purposes it supersedes the *Golden Chain* and similar kinds, by virtue of its freer growth, greater facility of propagation, hardier constitution, and more vigorous healthy growth in common garden soil: which latter peculiarity is not common to the last-named sort. It, moreover, requires no extra heat in winter if well exposed to light; and as the warm summer months advance, its picturesque expanse of foliage becomes conspicuous above that of all others in its tribe. In these essential decorative features, the varieties *Cloth of Gold* and *Golden Fleece* are unrivalled; they are by far the most valuable of all known kinds for extensive belts, margins, ribbon-lines, and geometrical sections; and when duly contrasted, or relieved by darker green central masses in terrace groups or chain rows, they produce a very rich and beautiful effect, requiring no artificial arrangement of growth, on account of the remarkably and constantly flat or level leaf-surface.

The variety in growth and habit which has been secured amongst the recently introduced kinds is such as to suggest that a distinction should be drawn between those best adapted for bedding purposes and those which are most suitable for dwarf ribbon rows, margins, or fancy vases. The endeavours of modern experimentalists have also been successfully directed towards the production of a novel class, exceedingly picturesque in its features, in consequence of having a brilliant rosy or crimson-tinted zone overlaying the margin of the dark belt found in the horse-shoe or zonate-leaved silver and golden-edged varieties. Of this group, which may be aptly called the Tricolor section, the varieties named *Fontainebleau* and *Hotel de Cluny* were amongst the first examples; but it promises ere long to exhibit illustrations of brilliant leaf-tint in the open flower-garden almost as rich as are to be found in the most exquisite forms of tropical vegetation.

Formerly the variegated-leaved kinds were much deficient in the size of their flower-truss, as well as in the extreme narrowness of their flower-petals. They were also, with solitary exceptions, restricted to self-

coloured scarlet and lake-crimson tints. In the present improved race of seminal varieties, the silver and gold-edged sections include great improvements in all the warmer tints of scarlet, crimson, carmine and rosy carmine, salmon, rose, and pink blossoms, combined with large compact densely-flowered trusses, and distinguished, moreover, by well-formed and closely-converging petals.

The following kinds are amongst the finest that have appeared, in their respective classes, for ornamental effect:—

SELECT VARIEGATED PELARGONIUMS.

Golden Fleece.—This fine variety has been regarded as identical with the *Cloth of Gold;* but on comparison it will be found to be destitute of the peculiar downiness met with on the stem and leaf-surface of that variety; and it is more certainly distinct in its brilliant scarlet blossoms, the flowers in the variety just mentioned being crimson. In other respects it is in habit a counterpart of *Tom Thumb;* while in its level mode of growth it forms a sheet-like surface of broadly golden-belted leaves.

Snow-Flake.—A fine dwarf, well branched variety, with snow-white leaf margins.

Mrs. Pollock.—A splendid and picturesque variety, of free robust habit, with green leaf discs overlaid by a beautiful bronze-red zone, splashed or belted with bright red crimson, and outwardly belted with rich golden-yellow.

Glow-Worm.—Neat, dwarf, and compact, with good silver margins, and an inner zone of a rosy tint, the blossoms brilliant scarlet.

Silver Harkaway.—This novel variety represents one of the dwarfest in the tribe, densely compact and branched, with picturesque silver leaf belts or margins.

Golden Harkaway.—Equally dwarf with the preceding, with glossy rich green leaf-discs, and uniform golden margins.

Silver Chain.—A good match plant to the *Golden Chain,* with which it is uniform in habit; it has picturesque silver leaf margins, and bright scarlet blossoms.

Yellow Belt.—In the style of the *Golden Chain,* with bright green leaf-discs, richly belted with yellow, and marked with an inner shaded dark-red zone.

Golden Vase.—This variety is neat, dwarf, and compact in growth, with fine golden leaf margins, and producing trusses of cherry-red blossoms.

Miss Emily Domville.—A beautiful variety, of free compact growth, with silver-edged leaves, and bearing a profusion of bright salmon-tinted carmine blossoms.

The Rainbow.—One of the finest small branching varieties, with silver-margined leaves, marked with rich crimson or flamed-red inner zones.

Hotel de Cluny.—This is distinguished by its peculiarly neat, dwarf, and compact habit, having silvery white leaf margins, and an inner picturesque crimson-red zone.

The Fairy.—A very pretty low silver-edged variety, with toothed lobes, and compact dense growth, well contrasted with rich rosy-salmon blossoms.

The Queen's Favourite.—Elegantly dwarf and compact, with silver-belted leaves, the green disc having a picturesque carmine-crimson margined inner zone.

St. Cloud.—An exceedingly neat, small variety, with rich velvety silver margined leaves, marked with an inner rosy-red zone, and having rich rosy-tinted blossoms.

Picturatum.—An elegant variety of the tricolor section, with white-belted leaves marked with a very picturesque rosy-carmine inner zone.

Burning Bush.—A dwarf and compact kind, with silvery-bordered leaves, and rosy-red inner zone.

Dandy.—A singularly neat and distinct variety forming a dwarf dense bush, six to eight inches in height, with small roundish silver margined leaves. It is very suitable for the outer rows or margins of flower-baskets, or small parterres.

It is generally known that the varieties of bedding Pelargoniums which are adapted for large beds or groups, are also suitable for vase and flower-basket culture by proper attention to their growth. The following groups have, however, been assorted, for the purpose of showing the most appropriate kinds, and of assisting in forming selections adapted for various positions and objects in the flower-garden:—

For large beds and groups.—Cloth of Gold, Golden Fleece, Snow-Flake, Mrs. Pollock, Glow-Worm, Miss Emily Domville.

For front belts and ribbon rows.—Silver Harkaway, Golden Harkaway, Silver Chain, Yellow Belt, Golden Vase, Snow-Flake.

For out-door vases.—Cloth of Gold, Golden Fleece, Snow-Flake, Silver Chain, Mrs. Pollock.

For greenhouse and conservatory vases.—Snow-Flake, Mrs. Pollock, Glow-Worm, Silver Chain, Golden Vase, The Rainbow.

For small miniature greenhouse and conservatory culture in vases.—Hotel de Cluny, The Fairy, The Queen's Favourite, Golden Vase, St. Cloud, Picturatum, Burning Bush, Dandy.

The finest tricolors, with flame-crimson or rosy-crimson zones.—Mrs. Pollock, Glow-Worm, The Rainbow, The Queen's Favourite, Hotel de Cluny, Picturatum.

Mrs. Sowerby, Delt.

FUCHSIA.

1. Prince Leopold. 2. Black Prince.
3. White Lady.

ILLUSTRATED BOUQUET.

Published by E. G. Henderson and Co.

PLATE LIII.

NEW FUCHSIAS.

THE very extensive application of popular garden plants and flowers to decorative purposes, both in the open border and under pot culture, renders it necessary that, in the case of those having superior merit and attractiveness, the record of their individual features and excellences should be co-extensive; while from the numerous inferior varieties of mere local or contingent merit offered for sale, and the difficulty of forming an adequate conception of those characterised by the highest traits of excellence, apart from published figures, it is requisite, that in the interest of amateur cultivators and others, stated illustrations like the present, of the finest in each class, should be made public.

The accompanying plate shows how far the universally admired Fuchsia has attained towards perfection, and also makes evident that it is far in advance of many others as an ornament to the conservatory, the greenhouse, and the flower-border. Two of the varieties represented in the accompanying group belong to a magnificent selection of seedlings raised by E. Banks, Esq., of Deal, who has originated many of the finest kinds in cultivation, and whose seedlings of the past year are characterised by all the essential features of merit, whether for decorative or competitive purposes. The group alluded to consists of the following varieties:—

Fig. 1. PRINCE LEOPOLD (Banks); a large bold flower, with broad glossy carmine sepals, finely recurved, and showing a beautiful violet-purple cup-shaped corolla. This received a first-class certificate from the Floral Committee of the Royal Horticultural Society.

Fig. 2. BLACK PRINCE (Banks); a fine rich-coloured bold variety, the sepals broad, of a rich dark carmine scarlet, beautifully recurved; the corolla very dark purple, the darkest in the collection, barrel-shaped. It is a very distinct sort.

Fig. 3. WHITE LADY (Henderson); a neat variety, with smooth light crimson sepals, well recurved, showing a long white corolla. An improvement upon the Princess of Prussia, in purity of colour, and in the size of corolla.

OTHER SELECT NEW FUCHSIAS.

The varieties enumerated below, which are all fine additions to those already in cultivation, include the remainder of Mr. Banks' novelties of the past season:—

Star of the Night (Banks).—A noble flower, with remarkably broad, erectly curved, and polished rich carmine sepals, showing a large and beautiful even-margined parachute-formed corolla, one and a half inches across, of a rich damson or violet purple tint, the interior showing picturesque scarlet pencilled rays.

Perseverance (Banks).—Uniquely distinct and beautiful, with broad deeply-recurved light carmine or salmon-tinted sepals, and a finely expanded cup-shaped rosy-lilac corolla.

Lord Elcho (Banks).—A fine flower of great promise, with glossy rich carmine-scarlet sepals, of great substance and breadth, and a handsomely incurved cup-shaped violet-

blue corolla. Effective and beautiful. This received a first-class certificate from the Royal Horticultural Society.

Forget-me-not (Banks). — Sepals broad, bright carmine colour, very elegantly recurved to a half or three-quarters circle, the corolla rich blue, streaked with carmine from the base upwards.

Always Ready (Banks).—A very distinct variety, with broad, much recurved sepals, opening scarlet, and passing to a light carmine, the corolla widely cup-shaped, opening rich damson-blue, and merging into violet-red and purple. An excellent pot-plant.

Snow-storm (Henderson). — Rich crimson elegantly recurved sepals, showing a neat compact *double white* corolla, forming a neat exhibition variety.

Victor Emmanuel (Banks).—A distinct and beautiful variety, with broad, recurved, and well-proportioned red sepals, well contrasted with a pale reddish slate-coloured corolla. Commended by the Royal Horticultural Society for its novelty. This variety was shown at the meeting of the Floral Committee under the name of *Garibaldi*, but in consequence of there being already a variety under the same title, by the same raiser, the name has been changed as above.

Madame Cornelissen.—A fine double white corolla, with gracefully recurved deep scarlet sepals, showing prominent white petals, the beauty of which is considerably enhanced by the projecting rich violet-crimson filaments. Its habit of growth is compact and free blooming. It is well adapted for exhibition purposes.

Annie (Green).—A noble-habited variety, with rich green foliage. The flowers have the tube and sepals white, glossy, the latter of good width and substance, well recurved, showing a large and beautiful bright smooth rose-coloured corolla. A picturesque and effective variety, well adapted for growing as a tall pyramid for exhibition.

SPECIAL SELECTIONS OF FUCHSIAS.

The following additional varieties, including some of the newest kinds, are very highly commended for their proved merit, both for greenhouse decoration, and for competition. They are classed according to their colours :—

Crimson sepals, with mauve-coloured corolla.—Count Cavour, Victor Emmanuel, Perseverance.

Crimson sepals, with violet-blue corolla.—Lord Macaulay, Criterion, Prince of Orange, La Crinoline, Prince of Wales, Souvenir de Chiswick.

Carmine or scarlet sepals, with shaded violet corolla.—Prince Imperial, Catherine Hayes, Little Bo-Peep, Murat, Prince Frederic William of Prussia, Always Ready, Forget-me-not, Star of the Night, Lord Elcho, Prince Leopold.

Scarlet sepals, with violet-black corolla.—Black Prince, Garibaldi.

Crimson sepals, with white corolla.—White Lady, Princess of Wales, Princess of Prussia.

Crimson sepals, with double violet-purple corolla.—Sir Colin Campbell, Marvellous, Maréchal MacMahon, Marquis of Bath.

Crimson sepals, with double white corolla.—Madame Cornelissen, Snow-storm.

White sepals, with rose-coloured corolla.—Annie, Fair Oriana.

White sepals, with violet-purple or crimson corolla.—Rose of Castile, Princess Alice, Guiding Star, Schiller, Fairest of the Fair, Flower of France.

SELECT FUCHSIAS FOR PYRAMIDAL EXHIBITION SPECIMENS.

Annie.	Maréchal MacMahon (double).	Schiller.	Venus de Medici.
Count Cavour.	Prince of Orange.	Sir Colin Campbell (double).	White Lady.
Guiding Star.	Prince of Wales.	Souvenir de Chiswick.	

The culture of Fuchsias is so well and so generally understood, that it will be unnecessary to offer any remarks thereupon; the more so, as in our first volume, under Plate XII., some useful hints on their general management have been given.

EPIGYNIUM LEUCOBOTRYS.

ILLUSTRATED BOUQUET.

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PLATE LIV.

EPIGYNIUM LEUCOBOTRYS.

FOR this remarkable shrub, which is one of the most interesting of recent introductions, cultivators are indebted to the enterprise of the late Thomas Nuttall, Esq., of Rainhill, near Liverpool, through whose nephew, Mr. Booth, it was sent to England. It was originally discovered on the Duppla Hills, in North-east Bengal, where it is said to assume an epiphytal habit, being found in luxuriant growth upon a species of oak. It forms a vigorous hard-wooded or ligneous shrub, from three to six feet in height, of free branching habit, springing from a thick tuber-like root stock. The stems and matured lateral branches are dark brownish-red, surfaced over with small pale ash-coloured wart-like protuberances, which, by their connexion with the inner bark, are known to be the incipient germs of undeveloped rootlets, indicative of its natural or normal state of growth as an epiphyte. The leaves are produced in flattish whorl-like distant clusters at the extremity of each branch, reddish tinted when young, but becoming permanently green by age, of an acuminately-oblong outline, with shallow marginal dentations, glossy and ramosely nerved over the entire upper surface, but smooth and nerveless beneath. The racemes of conical or pentagonally-formed small white blossoms are produced from the axils of the clustered leaves, and are succeeded by numerous gracefully drooping racemes of snow-white berries, very beautifully adorned at the tip with a jet-black ring, having a black dot in the centre, and on the outside five small, distant yet distinct jet-black spots. Such is the peculiarly artificial appearance of the fruit and its markings, that a casual observer would, at first sight, conclude that he was looking on a waxen model which had passed through the hand of some lawless artist, who in an idle moment had indulged his mimic fancy on its decoration.

It would perhaps be impossible to point out a more unique and chaste-looking plant than this elegant shrub, so remarkably fertile of its charmingly marked berries, yet, withal so comparatively hardy in its growth as to merit a place in every collection of house exotics. Its numerous fruit-spikes may be fitly compared to strings of snowy star-tipt pearls couched upon a surface of living emerald. It appears equally adapted for pot culture or for the border on the ground level, and grows freely in equal portions of loam and heath mould, with a small portion of sand or small sand-stone gravel intermixed. As a cool greenhouse or conservatory shrub it only requires the medium temperature common to such plants, whilst small-sized plants form healthy growth in a well regulated pit or frame, and after maturity may be removed to either of the above departments. The young growth is formed of somewhat attenuate shoots with successive leaf-tufts as described, and it is upon the matured vigour of these that the production of bloom and fruit depends.

The most favourable season for applying the stimulus of repotting is in the early spring months. If the growth is required earlier, it should be aided by the temperature of a warm greenhouse or forcing-pit, until well

started and advanced, and should afterwards be matured in a cooler position. When planted in a conservatory or greenhouse border, the situation should be such as admits of good exposure to light, and free ventilation when required, with partial shade from intense sunlight at mid-day.

It is highly probable that the hardiness of this beautiful shrub will admit of its being planted out, in sheltered aspects, in open-air peat-beds. Such a position would induce a more liberal growth during the summer months, after which the plants should be removed into pots of commensurate size, as the terminal growth is hardening to maturity.

Miss Sowerby, Delt.

LILIPUTIAN OR BOUQUET DAHLIAS.

Printed by C. Chabot.

1. Goldfinch.
2. Crimson Beauty.
3. Little Mistress.
4. Dr. Webb.
5. Little Prince.
6. Child of Faith.

ILLUSTRATED BOUQUET.

Published by E. G. Henderson and Son.

PLATE LV.

LILLIPUTIAN, OR BOUQUET DAHLIAS.

OF the many popular garden flowers which have engaged the attention of cultivators of every grade, none has been a source of greater interest, or of more continuous attraction, than the variable Dahlia. This at least is true in relation to English gardens; and if the noted Tulip mania of the Dutch florists—which savoured more of infatuation than reality, and for a while perverted the legitimate objects of commercial enterprise, by the violence of its enthusiasm—be excepted, then the Dahlia is associated with more of floral celebrity than any other known flower; and up to the present period it steadily continues to dispute the palm of superiority.

The group of flowers portrayed in the accompanying plate, represents a new section called Lilliputian, or Bouquet Dahlias. They are distinguished from the large-flowered class by their somewhat more erect and slender growth, and by producing a profusion of very elegant miniature Ranunculus-like blossoms, which rival the Pompon Chrysanthemums in symmetry of form, and brilliancy of colour, whilst from their continued improvement they bid fair to equal them in compactness of growth and elegance of effect. For the decoration of table ornaments, the Bouquet Dahlias surpass all other autumnal flowers, on account of their extreme neatness and their long endurance, and they are equally valuable for drawing-room flower vases, baskets, &c., and for the decoration of entrance-halls, inasmuch as they show the brilliant tints of the large-flowered section, without its heavy lumpish character: indeed they are really of exquisite proportions, with perfect symmetry in their florets. They are admirably adapted to the most select flower-garden, where they may be employed in groups, beds, or parterres, of which they constitute one of the gayest ornaments through the autumnal season from their long continued succession of bloom. Finally, for yielding a picturesque effect in shrubberies, arboretums, and flower-borders, they are unequalled by any other tribe of flowers.

The following are the varieties represented in the plate:—

Fig. 1. D. Goldfinch.—Rich buff orange, tipped with bronze-red; a profuse blooming and effective variety.

Fig. 2. D. Crimson Beauty.—Fine amaranth, or violet-crimson.

Fig. 3. D. Little Mistress.—Rich violet-purple, free and compact in habit.

Fig. 4. D. Dr. Webb.—Brilliant orange-scarlet, small full flowers, good form, and effective.

Fig. 5. D. Little Prince.—Incurved, rich carmine red or crimson, tipped with white on the under surface of each floret; singularly beautiful.

Fig. 6. D. Child of Faith.—Incurved, creamy-white, of neat free blooming habit; a free-growing and effective variety.

The very marked improvements which have been brought about in this flower, favour the opinion that it will soon come to be regarded as one of the most valuable plants for garden decoration, and an indispensable feature in the arrangement of flowers for late summer and autumn display. It may not, therefore, be uninteresting to advert briefly to its origin and introduction to English gardens.

LILLIPUTIAN, OR BOUQUET DAHLIAS.

The Dahlia is a native of Mexico, and its introduction from thence to Europe dates from 1789, at which period it had been presented to the Royal Gardens at Madrid. The species then received is recorded as being the true *D. variabilis*, but otherwise known in gardens as *D. pinnata*, *D. purpurea*, *D. sambucifolia*, and *D. superflua*. From Madrid it appears to have been presented to the Jardin des Plantes, at Paris, in 1802; and subsequently, in May 1804, seeds of three kinds were sent from Spain by Lady Holland to the gardens at Holland House; these, which bloomed in September following, and proved to be identical with the above-named species, were published in the Botanical Repository as *D. variabilis nana* (Double Dwarf Lilac). Though the last-named date appears to be assigned as the first period of its appearance in England, yet on the authority of the Hortus Kewensis, the Dahlia was introduced as early as 1789, by the Marchioness of Bute; but was afterwards lost to the gardens.

The species known as *D. variabilis* is the one from which the innumerable race of florists' or exhibition varieties has been derived; and the present high degree of perfection to which it has attained is attributable to the rule observed by raisers of seedlings of preserving only the varieties of the finest form and colour, and thus annually producing from their best flowers still higher forms of symmetry and beauty.

Apart from other essential points of excellence in the Dahlia, one of the most striking distinctions between the primary varieties and those of the present day, is that of difference in height. The original forms, it will be remembered, often attained a height of from six to ten feet, while the finest varieties now grown only rise from two to four feet, with a densely compact habit of growth.

Amongst the first and most distinguished cultivators of the Dahlia, under whose auspices the seminal varieties were greatly increased and widely distributed, were Count Lelieur, in France, and M. Otto, the able Director of the Botanic Garden in Berlin. It was by the last-named gentleman that the first varied selection grown in British gardens was presented to the Horticultural Society of London in 1817.

The production of a blue-flowered Dahlia has often been a subject of speculation, in consequence of so many brilliant shades and colours being produced among the seminal varieties. Professor De Candolle has argued against the possibility of its production, since the primary colours of the Dahlia run from purple to yellow; and he further considers that, as blue and yellow may be regarded as the fundamental types of colour, they may be supposed to mutually exclude each other: by which rule it would follow that yellows pass readily into red or white, but never into pure blue, and in like manner blue flowers may, by cultivation or cross-breeding, be changed into red or white, but never into yellow.

ERYTHRINA MARIE BELLANGER.

Printed by C. Chabot.

ILLUSTRATED BOUQUET.

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PLATE LVI.

ERYTHRINA MARIE BELANGER.

THE species of *Erythrina*, or Coral-tree, have ever been regarded as objects of almost unequalled splendour when seen in gardens under skilful treatment. Indeed, the finer forms must be allowed, on all hands, to stand pre-eminent amidst a thousand other species of real, though less attractive merit. In speaking of this family of plants in its relative adaptation to the decoration of the flower-garden and conservatory, it is not sufficient merely to affirm that its forms are beautiful, for the Coral-tree, when most successfully encouraged to mature its growth and bloom, stands as a princely object amongst its compeers.

The more important of the Erythrinas yet introduced to English gardens, admit of being classed in two sections. The first comprises a limited number of cool hothouse shrubs of a somewhat robust and branching habit, generally producing bloom from the current year's growth, arising from the matured extremities of the preceding season's shoots, the flower racemes varying from nine to twelve or sixteen inches in length. Of this group, *E. caffra* and *E. speciosa* are examples. The second section may be considered as sub-shrubby herbaceous plants, furnished, that is, with a ligneous or woody stem or crown at the base, from which by annual pruning arise each successive spring, erect luxuriant willow-like unbranched shoots, from three to six or eight feet in height, terminating in magnificent spikes (from one to two feet in length), of brilliant crimson pea-shaped flowers, the number of such stems varying from three to six or ten, in proportion to the vigour of the plant. This group is exemplified in *E. Crista-galli* and *E. laurifolia.*

The fine variety represented in the accompanying plate was raised in the south of France, and is found to be a great improvement upon all those which preceded it for flower-garden decoration, in consequence of its much dwarfer habit of growth, which renders it more manageable either for pot or ground culture. It forms a comparatively low shrub, with ternate leaves, the lower pair of leaflets acuminately ovate, and the terminal one ovately cordate in outline; and it produces densely-flowered racemes of bloom, one to two feet in length, the flowers of a brilliant crimson-red, and commencing near the base of each plant. Its long-continued and prolific bloom renders it a splendid plant for beds, large groups, or portable specimens during the summer months.

The following are the most desirable species and varieties of this fine genus now in cultivation:—

E. floribunda.—A new and valuable variety, rather diffuse and well branched in habit; the stems spiny; the leaves ternate, diverging horizontally, the lower leaflets acuminately-oblong, the terminal one ovately-cordate; the flowers produced in fine long terminal spikes, of an elegant rosy-crimson, forming a beautiful contrast to other kinds.

E. Crista-galli.—The well-known and ornamental species, distinguished by its dark green colour, and its numerous stems, which are more densely clothed with leaves than in most other species, and are smooth, with scattered prickles at the base, and tinted with purplish-red towards the extremities, this colour also spreading over the young leaf-growth; the leaflets are alike, nearly ovate, or become ovately-oblong by age. The flower-spikes are from one to two feet in length, densely clothed with very rich crimson-scarlet blossoms, which, as in the other kinds, are of a thick enduring texture.

E. laurifolia.—This differs from the *E. Crista-galli*, with which it is often confounded, in its more slender open-branched habit, and its more thinly-placed acuminately-oblong leaflets, which are of a nearly uniform green tint. Its long terminal spikes of crimson flowers, more conspicuously effective than in the species just named, are exceedingly beautiful and imposing.

E. Belangeri.—A robust well-branched hybrid variety, having the stems and leaf-stalks furnished with scattered prickles; the leaves are ternate, the opposite leaflets ovately-oblong, and obscurely waved, the terminal one larger, and ovately heart-shaped in outline. The blossoms are produced in spikes, and are of a rich deep crimson.

E. Cottyana.—This resembles *E. Belangeri* in its habit of growth; the stems and leaf-stalks are furnished with scattered prickles, and the entire plant is of a paler green. The leaves are ternate, the lower opposite leaflets ovate, with the terminal one larger, quadrately-cordate whilst young, and attenuating into a broadly-ovate, or elliptically-oblong outline as it gets older. The flowering stems terminate in racemes of fine rich blood-red blossoms.

Though the above species and varieties of *Erythrina* form strong ligneous or woody stems at the base, the only means of obtaining the full development of the splendid flower-spikes is by annually cutting down the stems after the flowering season is past, allowing the plants a dry rest until early spring, when they are gently stimulated to renew their growth from the buds formed about the base of the previous year's stem. In this way additionally luxuriant growth is secured each successive season, and proportionately higher stimulus by removal to larger pots is required with the annually increasing vigour of the plants. By this practice, the foregoing kinds, especially those adapted for the largest pot culture, *E. laurifolia* and *E. Crista-galli*, attain to a very remarkable size, requiring the ample accommodation of large boxes or pots. By means of the stimulus of a duly regulated medium root-temperature during the first month's growth, and by exposing them, as afterwards required, to a high upper temperature with free access of light, these noble plants, by pot-culture alone, will mature from five to ten of the strongest shoots terminated with their gorgeous racemes of bloom. By disrooting the plants after the season of rest, and re-potting as required in succession from February until May, a rotation of flowering plants may be had during the summer and early autumn months, during which period they are invaluable where large plants are required. They are also admirably adapted for exhibition purposes, as well as for the decoration of entrance halls, or for temporary avenue approaches to mansion fronts. The capability of these plants to adapt themselves by gradual exposure to endure the open air, as they attain to maturity, is known as one of their valuable features.

When treated as herbaceous plants all the varieties of Erythrina in the foregoing selection, especially the dwarf varieties of recent introduction, are adapted for beds or large groups in the flower-garden. They require to be placed in favourable sheltered and warm aspects, and well established two or three or more year-old plants should be used. They should be planted from the middle of May until June, at distances from one to two feet apart, according to their vigour. After the blooming season, these may be prepared for winter protection by cutting the stems back to the base, as already described; and after they are well dried by exposure, they may be covered with dry tan, leaf-mould, or wood-ashes, to the depth of twelve inches, and if desirable turfed over, so as to throw off the wet. This surface protection is to be removed in spring, and each separate plant-crown protected against late spring frosts, by means of hand-glasses, and the bed should be re-surfaced with rich soil.

For planting against conservative walls, or vacant spaces in the front of mansions, or against sheltered trellis-work, the Erythrinas have few equals. In such positions they require a tolerably deep dry subsoil, and to be planted about six inches below the ground-surface as a preservative from frost; after being pruned back in October or November, the crown should, moreover, be covered as directed for the open bed.

The soil or compost best adapted for the Coral-tree is two or three parts of friable turfy yellow loam, one of leaf-mould, and one of friable sandy peat or heath-soil, and where there exists a deficiency of vegetable fibre, one-sixth part of charcoal knobs of the size of small marbles, or walnuts, should be added. As the plants advance to mature growth, an occasional watering with liquid manure will encourage their development.

Miss Sowerby, Delt.

FUCHSIA.

1. Comet. 2. Minnie Banks.

Printed by C. Chabot.

ILLUSTRATED BOUQUET.

Published by E. G. Henderson and Son.

NEW FUCHSIAS.

The culture of the Fuchsia has been already sufficiently explained at Plate XII. of our first volume, and Plate LIII. of our second volume; at the former place will also be found some descriptive notes on the most valuable and ornamental species of this favourite genus. The practical management of the plants having been thus explained, and being almost universally known, it is not requisite that it should be here repeated.

COLEUS VERSCHAFFELTII.

We avail ourselves of the present space, to notice a recently-introduced stove plant, *Coleus Verschaffeltii*, the foliage of which is remarkable for peculiar richness of tint and picturesque effect. Indeed, of the numerous plants now in cultivation, having richly coloured and highly decorative foliage, there are none of the same character or colour which are equal to that which forms the subject of these remarks, which has been obtained from Java.

The introduction of this exquisitely coloured plant seems to have taken place through the Dutch gardens, and it simultaneously found its way into the hands of several cultivators. It forms a robust and vigorous suffruticose, or soft-stemmed plant, of free branching habit, having four-cornered, dark crimson, hairy-surfaced stems, which grow from one to two or more feet in height. In consequence of the free development of side branches, it is readily trained to form either a dwarf diffuse bush, or an erect conical mass. Its ample and rather densely placed leaves are ovate-acuminate in shape, somewhat abruptly squared off at the base, and having short broad oval teeth at the margins, the under surface of an uniform purple-crimson colour, and the upper varying from a brilliant bronzy red to a dark lustrous chocolate crimson, the younger leaves being broadly margined with bright light green, forming a fine contrast to the dark-coloured discs. In advanced growth the foliage looses this green belting, and assumes an intense self-colour.

Amidst the diversity of materials which are now available for the adornment of our plant houses, *C. Verschaffeltii* forms an exceedingly beautiful and unique object. Its comparatively quick summer growth, too, renders it very valuable for ornamental groups in conservatory summer decoration; for during the warm months of that season of the year, it adapts itself to the ordinary temperature of the greenhouse. In favourable seasons it is not improbable that it may add a new and distinguished feature to the flower-garden, but for temporary groups in large conservatory promenades and drawing-room approaches, it is a splendid object, either singly, or in large masses. What the remarkable and unique *Perilla nankinensis* is by its intense purplish black foliage to the summer flower-garden, *C. Verschaffeltii* is to the exotic groups of our plant stoves, by reason of its exquisitely rich bronzy and chocolate-crimson hues. If the former be considered more unique, the latter is far more attractive and picturesque in character, and whilst the former can only be had in full beauty through the transient summer months, the latter unfolds its marvellous leaf-tints throughout the year, and merits a permanent place in even the most select collection of ornamental-leaved plants.

Wm Withers Delt.

EPACRIS.

1. Tricolor. 3. Sunset.
2. Fireball. 4. Mont Blanc.
5. Butterfly.

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rose: each predominant colour being moreover prettily contrasted with white, blush-salmon, or carmine lobes. Many of the varieties are well adapted for winter and early spring bloom, by means of very gentle forcing in an intermediate or warm greenhouse, especially those allied to *E. impressa.* At the season just referred to, they are admirably suited for miscellaneous groups in flower-baskets, and the blossoms are also valuable for drawing-room or hand bouquets, being found to retain their freshness longer than the generality of cut flowers.

For greenhouse and conservatory decoration, the long neat attenuate flower-spikes have a fine effect when grouped or blended with other diversified forms of growth and bloom.

The Epacris thrives best in pure thoroughly decomposed peat or heath soil, well mixed with one-sixth of coarse gritty sand, and in common with all plants of similar growth, requires good pot drainage to maintain among the roots a due circulation of moisture, whether this be applied, as is necessary, with caution in winter, or more freely, as may be the case, in the hot summer months.

After the blooming season, the shoots should be freely cut back to nearly one half the extent of the whole plant, or within one or two inches of the base of the preceding summer's growth, and for a period of three or four weeks the waterings should be restricted to each alternate day (the plants being only syringed or sprinkled between), until the fresh shoots are fairly started from one to two inches in length, after which the plants, as required, may be repotted, the old exhausted soil being partially reduced, and the plants replaced in pots one or two sizes larger, according to convenience for growth, or the relative vigour of each plant. The ensuing season's growth will be best obtained in a genial warm greenhouse temperature, or in a pit which can be closed as required, each position being maintained at from 55° to 65° by sun-heat.

During the growing period, occasional morning and evening syringings with tepid water will be beneficial to the young growth; and after a short daily exposure with full ventilation, the structure, whether a pit or house, should be again closed, with a genial heat. Plants so treated during the late spring months, in pits, should be slightly screened from strong sunlight for a few hours about mid-day. Those plants in each section or colour which are required for winter or early spring bloom, should, after the current season's growth is obtained, remain under glass for a month or proportionately longer than those intended for the later display, to induce an earlier expansion of flower-buds. As the new growth attains to the length of twelve to eighteen inches, the plants may be gradually exposed to full sun and light, with a more free ventilation, and during the midsummer months they may be set on a surface bed of ashes or gravel, where they can be screened from the hot afternoon sun.

In addition to the varieties we have figured, which are all to be recommended, the following are amongst the most effective and ornamental in general cultivation:—

E. Carminata.—Rich flame red or scarlet, well branched, compact habit.
E. Devoniensis.—Style of *E. miniata,* with long crimson-tinted scarlet flower-tubes.
E. Eclipse.—Rich carmine-crimson, with pure white tips.
E. Hyacinthiflora.—Fine carmine-rose, with robust growth, and long flower spikes.
E. Hyacinthiflora candidissima.—Long racemes of pure white blossoms; a very fine variety.
E. Lady Panmure.—Pure white tubes, tinted with rose; very fine.
E. Lady Alice Peel.—Rich flesh, or salmon-coloured tubes; novel tint.
E. Lucifer.—Rosy-scarlet blossoms, style of *E. grandiflora.*
E. Lowii.—Rich rosy-purple and white tubes.
E. Miniata splendens.—Fine vermilion-crimson tubes tipped with white.
E. Mrs. Pym.—Bright rose tubes, with white lobes.
E. Odorata alba.—Neat bushy habit, with dense spikes of white hawthorn-scented blossoms.
E. Princess Royal.—Violet-rose blossoms, finely tipped white.
E. Viscountess Hill.—Brilliant orange-tinted scarlet; a fine variety.
E. Vesta.—White flower-tubes tipped with blush; neat habit.
E. Vesuvius.—Style of *E. impressa,* with bright crimson-red tubes.

SEDUM CARNEUM VARIEGATUM.

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PLATE LX.

SEDUM CARNEUM VARIEGATUM.

THIS very elegant and picturesque new species is a native of Japan, whence it was introduced to the continental gardens through the agency of Dr. Siebold. It forms a neat succulent-stemmed suffruticose dwarf herb, with a compactly branched habit of growth. The fleshy-looking stems, which grow from three to six inches in height, are at first sub-erect, but afterwards become decumbent or drooping. They are numerous, slender, terete, of a light pink or flesh colour, covered with glaucous bloom, and clothed with numerous linear lance-shaped glaucous green leaves, which are conspicuously margined with creamy white. When grown under full exposure to light, the plant thus assumes a beautifully variegated tint.

The close dense habit of growth renders this new introduction well adapted for many positions both in the conservatory and in the open air, under which latter circumstances it may be grown in warm sheltered situations. In consequence of its very free habit, and the facility with which it may be rapidly increased, it will be found an admirable plant for baskets, vases, or the margins of rock-work in the greenhouse or conservatory. On rockwork in situations like these it forms a pretty contrast when planted alternately or otherwise intermixed with low growing species of *Selaginella* (better known perhaps as Lycopodiums), or with other dwarf evergreen conservatory plants. It appears also to great advantage when used for side wall baskets, supported by brackets; whilst for a partially raised margin or belt around the inner side of a conservatory pathway it is very effective when planted as a centre row, and margined on each side with a belt of dwarf green Selaginellas.

For decorating pillar vases or artistic baskets, the plant is also well adapted, but it should be planted to form a central group or mass, and should be surrounded by a green outer belt. In congenial seasons it may prove of considerable value as a dwarf variegated plant for the front row in ribbon lines, or for a marginal belt in fancy parterres. It will also form a conspicuous object for covering fancy stone mounds; and when planted in groups on the sunny slopes of rural rock-work, it will impart a lively and diversified aspect to such situations during the summer and autumn months.

This interesting plant may further be turned to good account for decorative purposes under pot or vase culture. For this purpose, it should be planted as a centre tuft or group, and after it has become established in root-growth, the outer space should be filled in with a border of the beautiful *Lobelia Erinus speciosa*, or sown thickly with *L. bicolor* or *marmorata* to form an outer margin furnishing a continuous bloom. The vases or pots may at first be placed in a pit or frame, with good exposure to light, to encourage vigorous root-growth, after which the fore-shoots should be well pinched in or shortened proportionately to encourage a densely branched habit, whereby the bloom will be proportionately increased in the after-growth.

SEDUM CARNEUM VARIEGATUM.

An elegant effect may also be produced in vases for summer decoration on terrace fronts, by establishing centre groups of this plant, and filling up the outer margin with a belt of the well-known species of Saxifrage or Sedum. The dense green tufted and decumbent growth of these plants will beautifully contrast with the silvery leaf-tint of this variegated Sedum, and groups thus constituted will produce a rich and varied effect, if used alternately with other vase groups of larger growth and distinct aspect. Amongst the species adapted for this object may be named *Saxifraga tridentata, cæspitosa, affinis, ajugifolia, leptophylla, pulchella, tenella,* &c.; and of the more succulent family of Sedums — *S. pulchellum, elegans, multiceps, anopetalum, macranthum, acre, monregalense,* &c. Other distinct plants adapted for the same purpose will be found in *Arenaria balearica, Campanula garganica, C. muralis,* and *Hutchinsia alpina.*

Of the other species of Sedum, whose growth is specially adapted for basket or vase culture in conservatories and greenhouses, that called *Sedum Sieboldii,* is the most effective. This forms a very neat and dwarf spreading tufted subshrubby-looking plant, the arching branches spreading over a surface of one to two feet or more in width. The leaves are flatly orbiculate, glaucous green, occasionally tinged with red. The flowers are borne at the extremities of each shoot in corymbose clusters, each corymb nearly two inches in diameter, and they are of a rich purplish-pink colour. The graceful semi-drooping habit of growth renders this very pretty species well adapted for suspension, or for plunging temporarily in deeper vases, or for setting in a somewhat elevated position on the platforms and stages of a greenhouse. After the summer bloom is past, the plants should be allowed a partial rest until spring, at which period the shoots of the previous season should be freely cut back, and the plants should be repotted, preparatory to their being again started into growth.

TREE CARNATIONS.

We take advantage of the opportunity here afforded, to add to the remarks which accompany Plate LXI., a few further observations on the management of these very desirable flowers.

As a general rule the bloom of the Tree Carnation is regulated by the period at which the growth is made and matured. The spring growth will form its buds for the summer months, and the vigorous summer-growth will produce its bloom buds for late autumn and winter. The same plants cannot continue to develope a good succession of flowers throughout the year; therefore it is desirable to provide a succession of plants, or otherwise so to manage the summer-growth as to insure the most desirable bloom in late autumn and winter.

These varieties of the Carnation and Picotee will endure great cold in the absence of damp, and if well exposed to air in mild weather. Those of them which indicate delicacy of growth or constitution should be restricted to pots somewhat smaller in size than those employed for the more vigorous-growing sorts.

The diseases and accidents to which this tribe of plants is subject are these: — 1. Wire-worm, which being as it were natural to some soils is difficult to extirpate, except by hand picking, or an entire change of soil. Gas lime is said to destroy every slug and wire-worm by mere contact, if one or more sprinklings are added during the preparation of the soil the year previous. 2. Canker, which is supposed to arise from deleterious substances in the soil, as ferrugineous or irony matter, which when aggravated by other unfavourable conditions, such as stagnant or excessively hard water, causes internal gangrene in the stem, and this eventually saps the vitality of the plant. The only means of eradication is a change of soil for one of greater purity at least showing no trace of the matter alluded to. 3. Mildew, which is generally caused by over close confinement, in connexion with a cold and wet sub-soil, or surface. The only effectual remedy is the application of sulphur powder to the affected parts, and recourse to judicious ventilation.

Mrs Withers, Delt.

TREE CARNATION.

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1. Ariadne.
2. Beauty.
3. Garibaldi.
4. Perfection.
5. Queen of Whites.
6. Queen of Yellows.

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PLATE LXI.

TREE CARNATIONS AND PICOTEES.

AMONGST the many flowers which attract attention by reason of the special quality of being late autumn and winter bloomers the so-called shrubby or Tree varieties of the Carnation and Picotee have, perhaps, a more prominent interest than any other; and justly so, for the grateful fragrance which characterises many of the varieties, is only rivalled by that of the Rose, and perhaps is even more universally prized for its grateful essence than is that ever favourite flower. How else, indeed, could the appellation, "Flower of the Gods," have been won?

The varieties which form the accompanying group are selected from a continental collection, one of the finest of this flower known in Europe, and the present illustration is offered to show the great improvement which has been effected in this very useful tribe of decorative flowers:—

Fig. 1. Ariadne.—Fine rose-shaded ground, elegantly flaked with crimson and dark violet.

Fig. 2. Beauty (Picotee).—White ground, elegantly feathered at the margin with rose-colour, and having even rose-like petals.

Fig. 3. Garibaldi.—Rich bronze-shaded yellow, barred and flaked with crimson and rose.

Fig. 4. Perfection.—White ground, richly flaked and barred with cerise-crimson and violet; of fine form, with even rose-like petals; fragrant.

Fig. 5. Queen of Whites.—Fine pure white self, with even rose-like petals; fragrant.

Fig. 6. Queen of Yellows.—Rich yellow base, with faint white bars towards the margins; a large bold flower with even rose-like petals.

The varieties of the Tree Carnation at first comprised only self-coloured flowers—crimson, scarlet, and white; indeed for a considerable period the only variety in cultivation was the crimson, which was introduced to English gardens in 1821. Very distinct forms of the Tree Picotee were introduced to this country from Belgium in 1826, and figures of them were given in the *Botanical Magazine*, t. 2744; but they all appear to have been lost to us until a very recent period, when this section of the Carnation family engaged the special attention of some continental cultivators, whose judicious experiments have resulted in the production of a new strain or race, including many beautiful and unique varieties, amongst which are Carnations having parti-coloured flakes and bars of rich crimson scarlet or purple, upon white grounds, and Picotees with rich yellow, fawn, primrose, orange-yellow, or slate-coloured grounds, elegantly margined with lilac, rose, or scarlet, and in some varieties having the parti-coloured or scarlet or crimson flakes superadded. The flowers in the original varieties were too strongly marked by jagged and indented margins to hold a high position with connoisseurs; but many of the present varieties are greatly improved in outline, and are distinguished by rose-like petals, having an evenly rounded unindented edge.

The efforts of hybridizers have to some extent succeeded in removing the grosser clove-like habit of growth observed in the section of Carnations, and obtained a superior strain of flowers combined with a smaller, but

equally healthy leaf-growth. A similar improvement has also to some extent been effected in the Picotee section, for while many of the beautiful yellow-flowered kinds were formerly distinguished by yellow-tinted foliage, indicative of a less vigorous constitution, such varieties are now being replaced by others of a healthier character.

The hardiness of Tree Carnations and Picotees is such as to render it unnecessary to obtain their growth by the aid of artificial heat in greenhouse structures. It should, therefore, be understood that the accommodation of these plants in houses is merely for the purpose of assisting in the expansion of the flower buds, or for their protection till early spring. The growth of the plants themselves may be successfully obtained either by planting them out in the open ground, or by cultivating them in pots in thoroughly ventilated frames or pits. For the former method full exposure to air and sun is important, and a dry sub-soil of eighteen inches in depth is also essential. This sub-soil should be thoroughly turned over to the depth mentioned, and after this preparation a good layer of manure, either rich leaf-mould or cow-dung, should be dug in. The space for planting may with advantage be so planned as to admit of its being covered by a portable frame, which can be elevated or reversed as required, and employed to afford protection during the prevalence of heavy rains. As wet seasons are often the remote cause of canker in the growth of Carnations, the evils resulting from the presence of surface-moisture in excess may be averted in naturally heavy soils by elevating the material of the beds by means of brick or slate edgings to six or nine inches above the ordinary level. It will be found most conducive to healthy growth to avoid the risk of a heavy soddened surface-soil, even though it be at the expense of an occasional watering in dry weather. The plants may be arranged in the beds at from twelve to eighteen inches apart. The principal precautions to be taken are, to prevent a close condition of the soil after rain, by loosening the surface-soil; and during periods of drought to give free waterings to each plant.

A far more vigorous and continuous growth is gained by thus planting out in open beds after the spring frosts are past than can be obtained by pot-culture. In genial mild seasons the protection of portable frames may be dispensed with until the late summer months, when they will be found of service in stimulating the foreshoots to run up for bloom.

About September or October the flowering plants should be carefully lifted with balls of soil, and transferred to proportionate sized pots, in which they should be firmly planted. They should be sheltered for a week or more in a close light pit or greenhouse, occasional sprinklings of water and moderate ventilation being given. In this position, too, the plants can also be shaded from sunlight for a few hours at mid-day, until the plump and swelling buds indicate established root growth; and from that period they can be successively removed to the conservatory, where, at a temperature of 50° to 60°, the matured buds will perfect their bloom.

Tree Carnations should never be potted from the store beds until after the formation and swelling of their flower-buds. When the growth fails to produce bloom, the plants may either remain in the ground, or if more convenient may be potted and wintered in cool frames or pits, until replanted in spring. It is impossible to cultivate the Tree Carnation entirely amongst miscellaneous greenhouse plants, without the risk of attenuated growth, which is at all times unfavourable to the formation of flower-buds.

After the blooming period, each successive flower-stem should be cut back to the leaf-growth, however near the base it may be, to insure a vigorous dwarf aftergrowth; and eventually the plants should be placed in the coolest greenhouse, or frame, well exposed to light, and preserved from severe frost until spring, and then repotted, or re-surfaced as required, being kept at a slowly progressive growth with free ventilation in all mild weather, until either planted out, or placed upon a well-exposed dry-surfaced border, where being attentively watered, the summer growth will produce flower-buds for late autumn and winter.

For some further observations on the treatment of Tree Carnations, see Plate LX.

1. Cassia schinifolia. 2. Bouvardia Humboldtii.
3. Myosotis montana.

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PLATE LXII.

CASSIA AUSTRALIS, VAR. SCHINIFOLIA.

(Fig. 1.)

THIS is a remarkably neat and elegant spring-flowering cool-greenhouse shrub, growing from one to two feet in height, and having a rather slender, yet firm, woody sub-erect branching habit. Its origin is not correctly known. It has reached English gardens from the continental nurseries, where it is sometimes known as *C. floribunda*, but more generally as *C. schinifolia*, which latter name appears on our plate. It is, however, certainly not to be identified with either of the foregoing species, but seems to be a form of *C. australis*, with rather more acute leaflets than that formerly known in cultivation.

Most of the species in this interesting genus are of robust growth, and though generally producing gay terminal and axillary clusters of blossoms, yet these are too limited in succession to render them general favourites for pot-culture. The present species is, however, an exception, for its comparatively dwarf habit brings it within the scope of even the smallest greenhouse, whilst its neat pinnate leaves, with their numerous narrow linear-lanceolate dark-green leaflets give it, irrespective of its flowers, a permanently ornamental character. As a flowering shrub, however, it is the most interesting, as well as the prettiest illustration of the genus *Cassia* yet known in gardens. The flowers are produced in terminal umbellate racemes, and are of a rich golden-yellow colour. They are developed during the first months of spring; and, indeed, by the aid of an early matured spring growth they might be readily induced to perfect themselves during the winter months. In either case, the plant is valuable for conservatory and greenhouse decoration. Its tendency to flower while small, renders it suitable for the most limited collections. The scarcity of yellow flowers in early spring will give it special value as a decorative plant for that season.

This *Cassia* thrives well in nearly equal portions of loam and peat, a preponderance of the former being preferable. After the season of bloom is past, the plants should be pruned back to near the base of the lowest green leaves, and placed within a warm greenhouse in order to renew their growth for the ensuing year. When the young shoots have attained from nine to twelve inches in length, the plants may be gradually inured to the climate of a cool greenhouse pit, or frame for the summer months. The elegant and compact habit of the plant will also render it suitable for planting in conservatory borders.

BOUVARDIA HUMBOLDTII.

(Fig. 2.)

This, which is one of the most recently introduced and distinct species of a much admired and popular genus, has been obtained from Mexico through the Messrs. Roezl. The plant forms a neat dwarf slender-branched sub-erect greenhouse shrub, from twelve to eighteen inches in height, with comparatively small ovate glaucous green leaves, about an inch in length; and it produces terminal long-tubed snow-white flowers, the tubes of which are very slender, three to four inches in length, and expanded at the extremity into a starry four-lobed limb measuring about an inch across. Its solitary gracefully-inclined blossoms projecting from the extremities of each shoot in the early

spring and summer months, give it a very distinct and interesting aspect amongst ornamental flowering groups for conservatory decoration.

Its blooming period follows in succession to that of the winter-flowering kinds, such as the scarlet *B. leiantha* and the white *B. longiflora*. After the spring months it may be either returned for summer treatment (by pot-culture) to the pits, or frames, or otherwise may be planted out in the flower-garden borders, where in warm favourable seasons it will make vigorous growth for the following year. Plants so treated should, towards autumn, be replaced in pots, and protected in a warm greenhouse, until they are required to be gradually excited to bloom in the forcing-house. The soil best suited to this, in common with other species, is about equal portions of well-decomposed rich turfy loam and heath-mould, intermixed with a sixth part of small crushed sandstone, or charcoal.

MYOSOTIS MONTANA.

(Fig. 3.)

Amongst the various hardy alpine plants specially adapted for decorating the conservatory and greenhouse in the early spring months, the genus of Forget-me-Nots offers several highly interesting and beautiful examples, one of which is illustrated in the accompanying group. This plant, called *Myosotis montana*, which appears to have been introduced to English gardens from Belgium, bears in its general features so near a resemblance to the *M. alpestris*, that it can scarcely be looked upon as more than a fine seminal form of that species, with somewhat larger blossoms, and a dwarfer habit of growth.

It forms a neat dwarf cæspitose sub-perennial herb, from four to six inches in height, with oblong-spathulate leaves, of a light green tint, and nearly destitute of the hirsute covering which is conspicuous in *M. alpestris*. The numerous salver-shaped blossoms, which are borne in sub-erect racemes, are of a brilliant azure marked with a golden-yellow eye, surrounded by short silvery rays. It presents an exceedingly pretty object when forced into early bloom, and its adaptation for cultivation in small pots renders it suitable for the most limited collections. The summer and autumn established plants are those most suitable for yielding the earliest spring flowers in the forcing-house or warm conservatory.

Not being strictly perennial, the plants require special attention after the flowering-period, to afford them a due season of growth. The expended flowering shoots must be removed, and the plants may then be allowed to remain a short time in the forcing-house, where they should be supplied once or twice with weak manure-water. When they have started into growth, they are to be repotted as required, and at length removed to a cool frame or pit, preparatory to being divided for increase. The divided plants, when established by the aid of the same protection, may be ultimately placed for the summer months upon a half-shady border.

When pot-culture is dispensed with in summer, the plants should be turned into a bed or border screened from the mid-day sun, and should be solely encouraged for leaf-growth until early autumn, when they should be repotted and arranged with other alpine plants, either on open beds, or in shallow pits with day and night ventilation. Plants intended for forcing are best preserved in a cold well-ventilated house.

One of the finest species of Forget-me-Not, as an early summer-flowering plant for parterres and beds, is the *Myosotis sylvatica* of gardens. It grows more freely and is more robust than most others, and is distinguished by its darker green oblong-spathulate leaves, having prominent hairs on both surfaces. The flowers, abundantly produced in terminal secund racemes, are of a brilliant blue, with a yellow eye or centre. It is a plant of rapid increase, and it has moreover the valuable feature of being sufficiently hardy to endure winter cold in the open borders. It may be sown in late summer in a store-bed, where it will yield an abundance of plants for the decoration of the conservatory, greenhouse, or flower-garden.

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Miss Sowerby, Delt. BOUGAINVILLÆA SPECIOSA. Printed by C. Chabot

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PLATE LXIII.

BOUGAINVILLÆA SPECIOSA.

FOR many years past, there has been occasionally met with in English hothouses, a climbing shrub, everywhere healthy and vigorous in its growth, and reputed to be exceedingly beautiful when in flower, but which, owing to defective notions as to its proper treatment, has for the most part continued year after year entirely barren both of flower-buds and blossoms. We allude to *Bougainvillæa speciosa*, the plant represented in the accompanying plate, which has generally borne in gardens the name of *B. spectabilis*.

The *Bougainvillæa* has been known for years to produce its brilliant flower-bracts at the Jardin des Plantes, in Paris, in such profusion as nearly to exclude the light of a conservatory-roof, owing to the great extent of its growth, and the abundant clustering panicled inflorescence. The plant was indeed described by visitors as the most magnificent object in that celebrated garden. Unfortunately the repeated notices of its marvellous beauty which occur, do not give any clue as to the conditions of its culture, or indicate the probable cause of its annual development of blossoms. Unlike some other rare plants seldom seen in a flowering condition, and whose excessive vigour or sparingly-branched growth require the application of cultural skill to increase the number of branches as a means of obtaining a proportionate amount of bloom, the *Bougainvillæa* is naturally a very freely-branched shrub, in which the sap becomes diverted into a thousand channels, and distributed through a multitude of leaves—conditions apparently adapted to secure the elaboration necessary to fertility. Yet this result is so seldom realised, that in the majority of cases where *Bougainvillæa* has been planted, it has been soon discarded as unworthy of the space occupied by its abortive growth. It was not until the beauty of the plant, till then almost unknown in British gardens, was developed in all its splendour in the stove at Swyncombe House, the residence of the Rev. C. E. Ruck Keene, near Henley-on-Thames, by the practical skill of Mr. J. Daniels, that its true value as an ornamental plant became generally known and appreciated. The magnificent trays of inflorescence exhibited from Mr. Keene's garden during the two past years have called forth the highest admiration, mingled with surprise that so desirable a plant should not have been cultivated with a degree of success equal to its merit at a much earlier period.

Bougainvillæa speciosa is a native of Brazil: probably of the temperate regions. In cultivation it forms a luxuriant warm conservatory or cool stove shrub, covering from fifty to three hundred superficial feet, much branched, the stem never acquiring a circumference in proportion to the elongation of its branches, which latter, whilst young, are pliant, and spreading rather than drooping. The entire plant is surfaced with long soft hairs, pale-coloured at first, but becoming brown and imparting to the surface a shaggy appearance in mature specimens. The ovate oblong leaves, which have the margins waved, and are each accompanied by a strong curved spine at the base, are comparatively small, and adapted to display fully the myriads of gay rosy mauve-coloured bracts, or involucres, which surround the flowers, and form dense panicled terminal clusters, with a trichotomous or three-fold system of ramifica-

tion. The true flowers are each enclosed in a triplet of these gay-coloured bracts, and consist of narrow tubes, an inch and a quarter in length, green in the lower half, and cylindrically five-angled above, expanding into a yellow salver-shaped limb, which very soon shrivels, and then becomes contracted in a spiral form. The exquisitely beautiful flower-like bracts are cordate-ovate in form, an inch and a half in length, and nearly as much in width, each triplet being disposed in a triangular manner. The whole inflorescence is gracefully dependent in densely crowded masses.

The plant grown at Swyncombe, from which the present illustration has been taken, was for the first year grown and well established in a pot, previous to its being planted in the position it now occupies, which is a partially elevated bed of soil, limited to an equal width and depth of three feet, and composed of loam, brick-rubble and charcoal. In this situation the roots were brought in close contact with a hot wall, enclosing a projecting boiler, in front of which wall some bricks had been loosely piled up at the base, but so as to give the roots free access to the wall. Under these circumstances they were at first exposed to a maximum heat of 140°, which afterwards, as the soil filled up the interstices, decreased to about 90° or 100°. During the first year, growth alone was encouraged, by means of free waterings and syringings throughout the spring and summer months up to August, after which the growth was severely checked by withholding moisture from the roots, and encouraging the perfect elaboration of the sap, by fully exposing the branches to the sunlight, and giving only distant free waterings as required. From December, occasional free waterings were again had recourse to, with alternate syringings. When the full blooming size had been reached, water was applied less frequently, so that the plant did not droop, but occasional syringings were given. As the plant advanced in growth, greater space was allowed for root extension. At the present time, this magnificent specimen covers a space of 350 superficial feet, the circumference of the stem at the ground surface being only 10 inches. After each season's growth, all shoots of excessive vigour are cut out; and except where the remaining branches require thinning out, the rest are left unpruned and tied in as required.

In the absence of any special source of root-warmth such as contiguity to a main heating-apparatus, it may safely be recommended, where an attempt is to be made to grow the *Bougainvillæa*, to enclose a section or portion of a heated flue, or a coil of pipes, or an inner wall-flue, in order to form a hot-air chamber over which to form a bed of heated soil for the roots. The capacity of the bed of heated soil should be regulated by the extent of growth to be accommodated; the rule being, that the more limited the area for permanent branch-growth, the smaller the space required for root-extension. In all cases, there should be provided small openings as outlets for the roots to pass into the under strata, and there must be complete drainage.

Where there are no available means of obtaining the desired root-temperature, the requisite maturity of growth for bloom will depend greatly upon a due restriction of the roots, and the full maturation of the leaf organs by an increase of atmospheric heat during the late summer and autumn months, the required extent of growth having been obtained by the midsummer season. Where an impoverished soil is used to prevent excessive vigour, liquid manure may be occasionally applied if requisite; and when the space for branch-growth is fully occupied, water may be withheld from the soil for considerable periods, so long as the leaves do not absolutely droop. An annually restricted and perfectly rested root-growth, together with full exposure to powerful sunlight for some weeks at midsummer, is essential when the plant is grown in the border of a warm conservatory or greenhouse. The period when general selections of plants grown in cool houses require a warm and genial atmosphere in spring, will be quite suitable for stimulating the growth of *Bougainvillæa;* and the period, when greenhouse plants are transferred to the open air for the summer months, and the temperature is raised to a stove heat for the temporary accommodation of hothouse plants, will also be suitable for bringing this spring-formed growth to maturity. Another ornamental species of this genus, *Bougainvillæa glabra*, will be found noticed under Plate LXIV.

AUCUBA HIMALAICA.

Miss Sowerby, Delt. *Printed by C. Chabot.*

ILLUSTRATED BOUQUET.

Published by E. G. Henderson and Son

PLATE LXIV.

AUCUBA HIMALAICA.

AMONGST the many useful and ornamental kinds of shrubs which enliven our gardens and pleasure-grounds, the well-known variegated *Aucuba japonica* holds a foremost place, not less, however, on account of its decorative effect, than for its accommodating habit, which adapts itself perfectly to our English climate. Within the memory of many living persons, this plant, which is botanically regarded as a variegated form of the female type of the species, was treated as a tender exotic and was cultivated in the greenhouse, or stove, receiving similar treatment to that which was formerly given to the common Larch, the Corchorus (*Kerria japonica*), and the still more beautiful scarlet-flowered Quince (*Pyrus* or *Cydonia japonica*). When its remarkable hardihood, its capacity to withstand the repeated frosts of our winters, its effectiveness through all vicissitudes of weather, and its general adaptation to ordinary soils, are considered, the value of this now common shrub for garden decoration can scarcely be overrated. It has, however, long been known that the fertile or berry-bearing plants of the green-leaved type of *A. japonica* are, in their native country, still more attractive than the finest variegated forms, on account of the abundant and beautifully coloured fruit with which they are ornamented. Thunberg describes them as retaining their rich orange-coloured oblong-ovate berries until March, and Mr. Fortune also speaks of the great beauty of their glowing red, or orange-crimson fruit, which appear in profusion throughout the winter months.

The recent acquisition by Mr. Fortune of both the green-leaved male and female forms, will doubtless lead to the production of fruit-bearing plants for the decoration of our gardens and pleasure-grounds generally. The variegated-leaved variety,—a form of the female plant which we now possess so abundantly,—is reputed to have found its way from Japan to Europe in the year 1783, through the Dutch gardens. The tardy introduction of the male plant may be attributable to the fact that the locality in which it is indigenous has only recently become accessible to foreigners; and the earlier possession of the variegated form may be easily accounted for, either on the supposition that the territory in which it is found has been open to the Dutch for a very considerable period, or that in their intercourse with Japan they had met with it in a cultivated state.

The foregoing remarks will serve as a preface to the account we have to offer of another fine shrub, closely allied to those already referred to, and a very recent acquisition to our gardens. This plant, called *Aucuba himalaica*, is represented in the accompanying illustration. It was discovered by Dr. Hooker in the Sikkim Himalaya; and notwithstanding the general similarity of features between the Indian and the Japanese *Aucubas*, that distinguished botanist regards the former as a distinct species.

This *Aucuba himalaica* proves to be a very handsome freely-branched hardy evergreen shrub, growing from three to five or six feet in height, and having rich full green stems, and large flat or expanded oblong-ovate leaves, six to nine inches in length, and three to four inches in width, very glossy whilst young, and maturing to a rich dark

green hue. The flowers are produced in short dense terminal thyrsoid panicles, and consist of a minute truncately-lobed calyx, and four small starry pink petals, of an ovate acuminate form, and ciliated. These blossoms are succeeded by clusters of bright orange-coloured oblong one-seeded berries. Being found in its native habitat, at an elevation of nearly 10,000 feet on the most humid mountains of the Sikkim territory, it is considered sufficiently hardy to resist the cold of English winters, and may be regarded as a most valuable addition to the evergreen materials available for planting flower-garden shrubberies and belts. In the almost total absence of flowers available for such situations during the winter and early spring months, fruit-bearing plants like the *Aucuba* are especially welcome, and its brilliant orange-coloured or coral-red fruit when contrasted with the dark-green foliage will be found very strikingly ornamental. The plants will also form noble bushes with which to fill out vacant niches and wider spaces beneath the partial shelter of other plants of tree-like habit, in larger shrubberies and arboretums. As an evergreen alone the *Aucuba himalaica* is a valuable introduction, its luxuriant and ample foliage distinguishing it from the generality of other shrubs. From the different forms of the allied species it will be readily recognised by its loftier and bolder habit, combining the proportions of a Magnolia, with the verdure of a Laurel.

From the only specimens of the fruit-bearing type of *A. japonica* yet known in this country, and but recently imported, the present plant differs in its taller and more robust habit; in its leaves being considerably larger, longer, and more uniformly attenuated; and in the gland-tipped teeth of the leaf-margins being much more prominent, as well as extended down two-thirds or more of the margins, while in *A. japonica* they scarcely extend to half the length of the leaf. The leaves, moreover, of the latter species, are often broadly ovate in outline, with a much sharper and more abruptly pointed apex. Though adapted for all ordinary garden soils, the plant loves a deep cool border, and prefers a partial shade to excessive sunlight.

BOUGAINVILLÆA SPECIOSA.

Continued from Plate LXIII.

For small conservatories and for cool stoves, another species, *Bougainvillæa glabra*, is found to be well adapted, being considerably hardier, as well as less vigorous in growth. It forms a neat sub-climbing shrub, differing from *B. speciosa* in its smaller oblong or acuminately-ovate smooth and somewhat glossy leaves, and in its more erect and slender habit. Being adapted for pot culture, as well as for trellis-work, growing without the aid of a high root-temperature, and producing its inflorescence during the autumn and winter months, it will be found of special value for decoration in the form of portable specimens. Its gay-looking flower-like bracts are produced as in *B. speciosa*, in large terminal panicles, sub-divided into triplet clusters, and are of an elegant rosy-lilac tint, and ovately-cordate in outline. Cut specimens of *B. glabra* were exhibited by Mr. J. Daniels in October, 1861, before the Floral Committee of the Royal Horticultural Society, and to those a first-class Certificate of Merit was awarded. They were produced from a plant but nine months old from a cutting; this, in the course of six months, had been grown on into an eleven-inch pot, and was five feet in height, well furnished with branches, the majority of which were covered with bloom. This plant thrives well in nearly equal portions of loam and peat, with a sixth part of broken charcoal intermixed. Its period of growth is during the late spring and summer months, during which the foreshoots, when vigorous, should be pinched back to encourage a dense or bushy habit. By June or July, as the extent of growth may be obtained, the plant should be exposed to the lower dry temperature of a cool open greenhouse for several weeks, to mature the summer growth, after which it may be replaced in a genial growing temperature to perfect the gay petal-like bracts of its inflorescence. This is the *B. splendens* of some gardens.

ALLAMANDA VIOLACEA.

Miss Sowerby, Delt. Printed by C. Chabot

ILLUSTRATED BOUQUET.

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PLATE LXV.

ALLAMANDA VIOLACEA.

THE announcement of a violet-coloured species of *Allamanda*,—a genus of plants whose beauty and grandeur of effect in cultivated specimens gave it a kind of claim to superiority over all others of kindred habit, but in which the colour of the flowers so far as was known was exclusively yellow,—was received somewhat distrustingly; and this distrust can scarcely be said to have been removed up to the moment when it was announced, that after several abortive attempts by cultivators of acknowledged ability, to cause this *Allamanda violacea* to produce its flowers, it had at last, during the past year, yielded to the practical treatment adopted by Mr. John Richardson, gardener to Joseph Pease, Esq., of Southend, Darlington.

Dr. Gardner by whom the plant was found, thus alludes to it in his journal on the Vegetation of Brazil:—"On my return to Crato, I again made a few excursions in that neighbourhood, and added considerably to my herbarium. One of the finest plants met with at this time, was a beautiful new species of Allamanda (*A. violacea*), a shrub from four to six feet in height, bearing numerous large flowers, not unlike in colour those of *Gloxinia speciosa*. This is by far the most beautiful species belonging to the genus, all of which, with this exception, bear yellow flowers." Since the plant has been made to produce its flowers in our gardens, some doubts have been expressed as to its identity with the species Gardner describes in the foregoing quotation, and it has been suggested that it might prove to be *A. puberula*; but a comparison with specimens gathered by Gardner himself, and preserved in the Kew herbarium, prove it to be the true *A. violacea*. It is also the same as *A. Blanchetii*, a name published by De Candolle about the same time that *A. violacea* was described by its discoverer. *A. puberula* differs in size as well as in the colour of its flowers.

Under pot-culture *A. violacea* forms a shrub of about the size indicated by Dr. Gardener. It is somewhat more rigid in growth than are the allied species, and differs from them in the following features:—(1) The stems of the young and partially matured shoots are somewhat hispid with projecting hairs, but these hairs for the most part disappear with age; (2) The leaves are more strictly oblong, and abruptly acuminate at the point; they are also thinly yet uniformly surfaced with close adpressed hairs, springing from an obscurely papillose surface; they are minutely fringed with projecting hairs; and the under surface of the midrib is more prominently hairy. The flowers are produced in terminal cymose clusters of four to six blossoms, on pedicels or stalks of an inch or an inch and a half in length, which support the incurved-lobed cup-shaped green calyx. The base of the corolla forms a narrow pallid green tube of an inch in length, having five small depressed cavities at its summit, above which, it enlarges into a funnel-like form, of an inch and a quarter in depth, and three quarters of an inch in width, and finally expands into a large and beautiful spreading limb, or border, consisting of five close rounded but somewhat one-sided divisions or lobes. These corollas, or flowers as they would be called, average from three to four inches in

width, and are of a rich deep violet-tinted rose colour in the first stage of expansion, merging at length into a delicate reddish plum colour, finely contrasted with the violet-crimson hue of the mouth of the tube, which latter is again relieved by a bright pale yellow ray-like mark at the base. The whole exterior surface of the blossom is of a glossy blush rose or pink.

As this beautiful plant has not been so successfully treated as its distinguished merits deserve, the following remarks which form the substance of a communication from Mr. Richardson, will be read with interest :—

"A plant of *Allamanda violacea* was received from the Wellington Nursery in July, 1859, and was then shifted into a five-inch pot, in which it was grown upright to nearly six feet in height. In April, 1860, it was shifted to a larger or eight inch pot, and in attempting to train it spirally, the entire plant was broken off at the base within an inch of the pot, but being allowed to remain as potted, by August of the same year, two shoots were produced from the base, weaker in proportion than the original. As these advanced in growth stakes were put in, around which they were trained in a spiral manner. In February, 1861, the plant was removed into a twelve inch pot, in which it formed and expanded the first blossom on September 7, 1861, having been established in the same pot for seven months; at this time it was five feet in height and nearly two feet in diameter. The spiral direction of the growth encouraged the development of lateral branches, which were tied down in a pendent or drooping form. The flowers were formed in sub-terminal clusters, each containing five or more blossoms, and for several days previous to opening, the bloom-buds were so richly violet-tinted, as to favour the supposition of the blossoms being bright blue. In their first stage of opening, they resembled in outline those of a drooping-flowered *Gloxinia*. The succession of bloom continued for a period of eight weeks, the individual blossoms continuing expanded from eleven to fourteen days."

The house in which this plant was so successfully grown, was one which admitted light almost equally on all sides, but was rather more open on the south-east front. It was principally devoted to the culture of large hothouse shrubs, intended for a succession of summer and autumn bloom, to produce which, the growth was stimulated and matured by the aid of a centre bark-pit. The routine of management was as follows :—The plants having received a partial rest during the winter months were pruned back as required and repotted by February, the pots being only partially plunged, and the atmospheric heat raised to 70° by day, with a proportionate decrease by night. In March or April the pots were plunged to the rim, or nearly so, thus obtaining a root-temperature (varying from back to front in the bark-bed) of 85° to 100°, which was continued until the end of June. The atmospheric temperature was allowed to range from 75° to 90°, being judiciously regulated by ventilation during the daytime. A genial humid atmosphere was also kept up. From July to September, the necessary extent of growth being gained, the root temperature was allowed to decline, and moisture sufficient only to keep the leaves healthy was allowed; but the air temperature was maintained, especially through July and August. By the foregoing treatment very successful results were obtained in the culture of the different species of *Allamanda, Echites, Ixora,* &c., which never failed to produce abundant bloom during the late summer and autumn months; and under the same conditions *A. violacea* perfected its flowers.

As a general rule the shoots were not shortened, but trained in the horizontal or spiral form with full exposure to light. *A. violacea* is not subject to the exuberant growth of *A. Schottii,* being more dense and accumulative in its vigour than the majority of other species, and also less flexile: hence the importance of training it in the young growth. In repotting it in January, 1862, its growth was found to be so uniformly branched as to supersede the necessity of pruning, which is required in other kinds.

As reputed plants of this fine species, but which ultimately proved to be a yellow-flowered kind, have been sent out by some trade firms, the foregoing descriptive notes will enable cultivators to distinguish the true one.

The yellow-flowered species of *Allamanda* rank amongst the finest plants for exhibition in their particular colour. The best of them are well-known, namely, *A. Schottii, A. grandiflora,* and *A. neriifolia.* The two former require free and vigorous growth, by being transferred successively from medium to large pots, as a means of producing their large and attractive broad-lobed salver-shaped blossoms. The last-mentioned is of a more dwarf and branched habit of growth with smaller funnel-shaped flowers, and by its tendency to bloom in smaller plants, is especially adapted for moderate-sized collections.

Mrs. Withers, Delt.

PELARGONIUM.

Printed by C. Chabot.

1. Silver Star. 2. Coquette du Plessis. 3. Madame Leroy.
4. Madame Lemoine.

ILLUSTRATED BOUQUET.

Published by E. G. Henderson and Son.

PLATE LXVI.

NEW FRENCH PELARGONIUMS.

THE PELARGONIUMS, now illustrated, are selected from a very distinct group which has latterly made its appearance in our gardens, in which it is known as the French hybrid, or sometimes as the Diadematum class. In this group we now find several exceedingly beautiful and richly-shaded colours, not seen in the usual large-flowered English competition varieties, so that it is attracting special attention from its adaptation to decorative purposes. For some time previous to the appearance of this race, there had been a lack of novelty of character amongst the Pelargoniums annually presented for public approval, and an abatement of interest amongst amateur cultivators, in respect to this extremely gay and useful class of plants, had been the result. This interest was not revived until the introduction of the group of varieties of which our figures afford some examples.

The accompanying plate contains representations of the undermentioned varieties, of which some further descriptive notes will be found below. It will be seen from these descriptions, that in the case of Coquette du Plessis and Madame Leroy, our artist has not been able to pourtray accurately the brilliant tints which they present under favourable conditions of growth.

Fig. 1. SILVER STAR.—Blush-white, with feathered pencillings of crimson.

Fig. 2. COQUETTE DU PLESSIS.—Rosy carmine, with feathered pencillings and white margins.

Fig. 3. MADAME LEROY.—Violet-rose, edged with white towards the base, and suffused with bluish-lilac towards the centre.

Fig. 4. MADAME LEMOINE.—Carmine crimson, margined with white towards the base.

Now that this class has become fairly established, each successive season introduces improvements in the several features capable of modification, and a gradual advance towards perfection has set in. Up to a late period the prevailing defect in the French class has been deficiency of form and evenness in the flowers, but at the present time a majority of the kinds are fit for competition along with the finest English varieties, having acquired in a considerable degree those qualities which are sought for in first-class flowers, namely, firm rounded petals of smooth outline, and fixed brilliant colours. Many of the varieties are as vigorous in growth, and as profuse in the development of blossoms as the usual show kinds; whilst others unite with a more slender habit of growth a proportionate prolificacy of bloom. The varieties of the larger growing class are admirably adapted for decoration in large-sized conservatories and greenhouses; whilst those of dwarfer habit are equally suited for smaller houses, and for drawing-room conservatory promenades. In such positions as these, or when grouped with other miscellaneous plants, the florid tints of these novel Pelargoniums render them exceedingly attractive. The colours in one group range through various brilliant tints of salmon-rose, carmine, or vermilion-scarlet, while in others a rich violet-purple tint is predominant. These colours are further varied, by the petals passing off to white at the margin. The

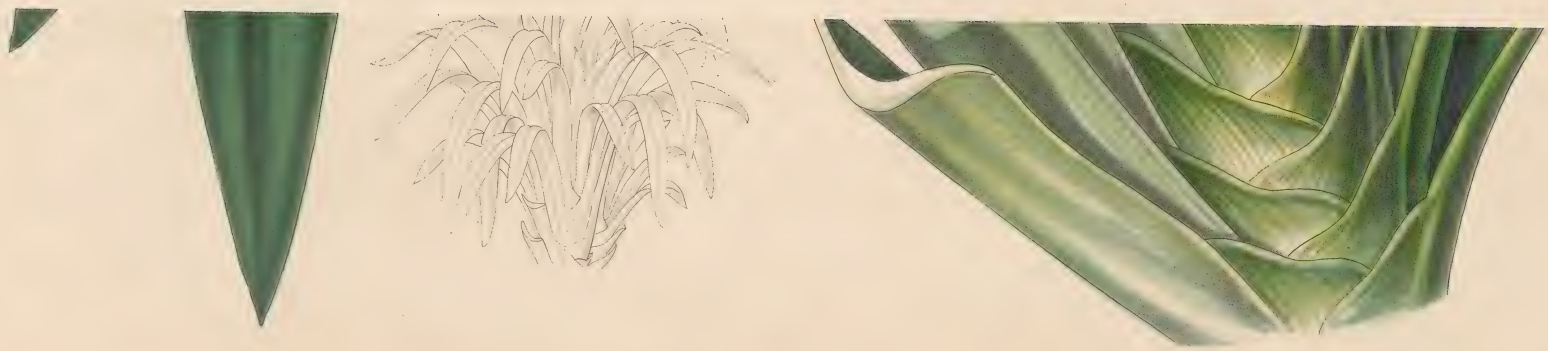
most novel combination of colours is seen in those flowers in which a shade of blue is found towards the base of the petals, a peculiarity which occurs in several varieties.

Silver Star is a remarkably neat-habited and beautiful French hybrid variety, of rather small stature, yet moderately vigorous in growth. It has slender green branches, reddish-tinted when young; and the leaves which grow on hairy foot-stalks, are comparatively small, glossy, five-lobed, and prominently toothed on the margins, occasionally approaching to heart-shaped in outline, sometimes abruptly truncate at the base. The flower trusses correspond with the growth of the plant, and are of average size, compact, and somewhat globular in form, comprising from eight to ten flowers. These flowers are individually medium-sized, being about an inch and a half in diameter, well expanded, with a nearly circular outline, the ground colour blush-white, suffused with pink, and very elegantly marked on the upper petals with radiating feather-like crimson lines. This variety presents the nearest approach to perfection yet attained amongst the light-coloured French sorts, and its beautiful outline and charmingly delicate colouring, which renders it one of the most elegant of its race, will make it indispensable in select collections. Its flower trusses will be also a desirable addition to drawing-room bouquets.

Coquette du Plessis is a highly ornamental hybrid variety of French origin. It is comparatively dwarf in habit, and has leaves of moderate size, roundly kidney-shaped, and sharply toothed on the margins, but not lobed as in the majority of kinds; the footstalks prominently hairy. The flower-trusses are numerous, and stand out well above the leaves. The blossoms are of medium size, the ground-colour white, marked on the upper-petals with a broad wedge-shaped blotch of brilliant rosy-carmine, the centre of which is ornamented with feather-like crimson lines extending from the base upwards to about the centre of the petals, which above this are further marked with two or three dark flakes, the rest of their surface being pure white; the under petals are uniformly tipped with a rich bright rosy-carmine blotch, the blotches being somewhat wedge-shaped in form, so that the petals appear to be margined with white.

Madame Leroy is a beautiful hybrid French variety of the medium-sized show class. It is moderately vigorous in habit and in leaf-growth, rather inclining to a horizontal direction in its growth. The leaves become smooth when mature, their footstalks being somewhat hairy. The flower trusses are of moderate size and compact in form, the blossoms being of full average size, nearly perfect in outline, and of a very richly-shaded violet-purple colour, elegantly suffused with white and bluish-lilac towards the centre, the margins of the petals being also belted with white. Each of the petals is marked from the base with small crimson forked lines, the markings on the two upper petals being somewhat the more prominent. It is a first class variety, unequalled in its section, and unsurpassed in all the essential features of merit.

Madame Lemoine is a very handsome hybrid French show variety, of moderately vigorous free healthy growth. The leaves are three-lobed, maple-like in outline, greater in width than in length, the short rounded lobes having small marginal teeth, the surface smooth, the footstalks hairy. The flower trusses are of average size and well-furnished, the flowers being of fine outline, the petals even, rounded, and of good substance, the ground colour white, broadly tipped with a large obovate rich carmine-crimson patch, so that they appear belted with white on the margins towards the base. At the outer edge of this patch is a narrow white border, and the base of each is shaded with violet-purple. The petals are marked with feathered violet-coloured lines, and also a large darker crimson blotch, which markings are rather more strongly developed on the two upper petals. It is one of the finest varieties yet raised, on the score of general excellence, and is very ornamental on account of its beautifully contrasted colours.



IMANTOPHYLLUM MINIATUM.

MANTOPHYLLUM MINIATUM.

PLATE LXVII.

IMANTOPHYLLUM MINIATUM.

THIS very handsome and effective plant, which is a native of Natal, is, in its aspect and habit of growth, suggestive of the blending, as it were, of some anomalous form of *Amaryllis* with the well-known *Agapanthus*, or African Lily; but though related to the former of these genera, it differs from either of them in being strictly evergreen. Thus regarded, its long-enduring, almost imperishable, rich dark-green foliage, gives it a claim to rank as a much finer plant for garden purposes than any which are known in the two families which have been referred to—fine as many of them are. The plant now illustrated was introduced to English gardens by Mr. James Backhouse, of York, who sent it to his own establishment, in the course of his travels in South Africa. It is indeed supposed to have been one of the same group of valuable miscellaneous plants, which also produced the very beautiful *Cyrtanthus sanguineus*. It forms a bold, stemless, evergreen, fleshy-rooted, warm greenhouse or conservatory plant, of about a foot and a half or two feet in height; and produces somewhat leathery, ligulate, acute, permanent leaves, which are placed in two opposite rows, and are broadly sheathed, in an imbricated manner, at the base, so as to form a neck-like extension of the crown. These leaves are sub-erect while young, but become divergent as they get matured; they are from 18 inches to a couple of feet long, and an inch and a half wide, bluntly channelled along the centre for nearly two-thirds of their length, and on both the upper and under surfaces of a rich dark-green hue, uniformly striated with shallow longitudinal grooves, and marked with transverse veins between. The flower scapes are from a foot to a foot and a half in height, flattened or compressed, with two sharp margins; they support a large umbellate head of a score or more flowers, each of which is borne on a glossy green three-sided pedicel or footstalk, from one to two inches in length. The blossoms are cup-shaped or vase-shaped, from two to three inches in width, and nearly as much in length, the lower half of the perianth segments of a richly-shaded buff tint, while the upper half is a beautiful light vermilion orange colour. The filaments with their anthers, as well as the style and stigma, are of a golden yellow.

As a winter and spring flowering plant, this forms one of the finest decorative objects which can be obtained for the conservatory from January until June. The large and brilliant flower-clusters produce an exceedingly beautiful effect in consequence of the rich contrast between them and the intense green foliage. Well-established plants will produce from two to six flower-stems, and by the aid of a slight stimulus, an after growth of a second flower-scape is often produced from the same crown during the later summer months. As an evergreen plant, it is one of the finest in the natural group to which it belongs, and it is probably unequalled in the mid-winter months as an object for the temporary decoration of a drawing-room, conservatory, or forcing-house, wherein a genially warm temperature can be maintained. The naturally vigorous growth of the *Imantophyllum* is much assisted by gradually inuring the plants, after their spring growth in the warm conservatory or stove, to the temperature of

the greenhouse, in which they may remain during the summer months. This temporary rest serves to mature the newly-added spring-growth, and the accumulated secretions become duly elaborated for the development of blooming stems. On the approach of cold weather the plants should be replaced in a warmer atmosphere, with a good exposure to light. They thrive in a compost of equal portions of well pulverized turfy loam and peat, mixed with a sixth part of partially dried leaf-mould and sand.

Closely allied to the subject of our plate, and bearing in gardens the name of *Imantophyllum*, though probably rather belonging to the related genus *Clivia* than to *Imantophyllum* itself as latterly defined, are the following plants, which being of a highly ornamental character may well be noticed in this association :—

Imantophyllum cyrtanthiflorum. This plant, which is of garden origin, is an evergreen herb, of robust growth, intermediate in character between *Imantophyllum miniatum* and the better known *Clivia nobilis*, resembling the former in its general features of growth, and the latter in its inflorescence. Besides the most essential distinctions, which occur in the flowers, the more apparent differences are, the greater width of its leaves, their more rounded or obtuse extremities, their deeper-channelled centre, and their less prominent longitudinal grooves and transverse nerves. The flower-scapes are very much compressed, so as to become bluntly ridged along the centre, with sharp parallel margins. The terminal umbellate flower-heads nearly equal in number those of the species just described, each umbel or flower-head containing from twenty to thirty blossoms, supported on green, glossy, obtusely-compressed foot-stalks, upwards of an inch in length, the centre flowers being erect, and the outer ones drooping. The individual flowers much resemble those of *Clivia nobilis*, being of a narrow elongated funnel-shaped outline, about an inch and three-quarters in length, widening from the base upwards, and expanding to three quarters of an inch at the mouth. The perianth segments are oblong-spathulate, and throughout overlap closely at the margins. In colour they are of a rich yellow-shaded orange-red in the upper part, the interior and remaining portions being of a rich buff, or orange-tinted yellow. When viewed before a strong light the margins show a beautifully translucent texture.

Imantophyllum Gardeni. This fine species has been introduced from Natal, South Africa, and is sometimes known as *Clivia Gardeni;* but from its close affinity with the preceding, and from its habit of growth, it may be noticed as one of the same group. It may be distinguished from both the plants previously described, by its being of taller habit, and of greater vigour, and by its broader leaves, which are from two to three feet in length, and from two to two and a half inches in width, of a lighter green tint, and more closely imbricated at the base; at this part, too, they are more expanded, but, as in the allied kinds, they have a deep rounded channel along the middle space, which passes into a flat expansion towards the extremity; the longitudinal grooves and transverse veins are more distinctly marked than in the foregoing kinds. The flower-scape is compressed, with sharp parallel margins, and supports a terminal umbellate cluster of from twelve to eighteen tubular funnel-shaped blossoms, on pedicels or flower-stalks of about equal length, the central ones standing erect, while the outer ones are drooping. The individual flowers are fully two inches in length, a good deal curved in the tube, of a rich buff-orange or brick-red at the base, merging upwards into yellow, and becoming green at the extremities. As a winter-flowering species it forms a desirable plant for conservatory decoration. It appears to be adapted to a lower temperature than the allied plants already referred to.

In association with the foregoing we ought not to omit to mention formally the much older and more familiar *Clivia nobilis*, an ornamental plant of similar character, to which incidental allusion has been made. Moreover, one cannot but notice the permanent enduring features which are characteristic of the whole group, all the imported species of which are South African.

Mr. Withers, Delt. PRIMULA SINENSIS FILICIFOLIA RUBRA. Printed by C. Chabot.

ILLUSTRATED BOUQUET.

Published by E. G. Henderson and Son.

PLATE LXVIII.

PRIMULA PRÆNITENS (SINENSIS) FILICIFOLIA.

THOSE cultivators who remember the introduction to English gardens of the Chinese Primrose, which botanists call indifferently *Primula prænitens* or *P. sinensis,* will not have failed to recognise the well-sustained interest and progressive improvement of this valuable plant. Its original worth, when introduced about forty years ago, has not in the least diminished, but, on the contrary, has continually been added to by the successful efforts of cultivators, who have produced finer forms and features, as well as added richer and more varied colours. Its admirable adaptation for the drawing-room and conservatory during the winter months, its easy culture, and its proverbially long-continued period of bloom, together with the fine contrast presented by the white-flowered variety when used for evening decoration, are indeed features which place this plant without a rival for real usefulness in the season of its bloom.

Up to a very recent period the Chinese Primroses have been solely valued for their effect as winter and spring-flowering plants, but the fern-leaved varieties (*P. prænitens filicifolia*), of which our plate affords an example, offer such a distinct and interesting form of growth in their elegantly lobed and dentated leaves, as to render them worthy of a place in plant collections, apart from the consideration of their merit for bloom. They are also additionally valuable as being reproduced true to their peculiar character from seed, thus enabling the cultivator to obtain a succession of vigorous plants. These Fern-leaved Chinese Primroses are readily distinguished by more erect and robust habit of growth. The lower series of the pinnatifid leaves alone assume a horizontal position, whilst the remainder rise from eight to twelve inches in height, on long rich crimson footstalks, their terminal leaf-blades being from six to eight inches in length, and a couple of inches or more in width. These leaves are narrowest at the base, and widen upwards; they are oblong in form, and somewhat concave near the base, otherwise evenly expanded, and being notched with numerous oblong lobes which are separated midway to the centre rib, and toothed at the edge, they acquire a somewhat fern-like appearance; whilst the rich tint of the midrib, in the red-flowered form we have figured, imparts a strongly marked feature of ornament. The flower-stems are from eight to ten inches in length, and produce a terminal cluster of from ten to twenty elegantly fringed blossoms of a crimson-tinted rose colour.

The white-flowered form (*P. prænitens filicifolia alba*) is a beautiful and distinct variety, similar to the preceding in its general features, but differing in the absence of the crimson leaf-stalks, the entire plant being of a healthy green hue, rather less erect and somewhat dwarfer, the leaves being shorter in the blade; it differs also in the pure white fringed blossoms, which are borne in large umbellate clusters.

The following varieties of the Chinese Primrose are also distinct, as well as novel and interesting:

P. prænitens roseo-lilacina. This pretty variety accords in its habit of growth with the original type, but has rather smaller ovately heart-shaped leaves, cut at the edge into roundly-oblong toothed lobes. It is probably the most profuse blooming variety yet raised, having remarkably large and numerous trusses, in some instances producing from 20 to 40 flowers on each, and in

others forming a second distinct tier or cluster on the same flower-scape. The flowers are elegantly fimbriated, and of a mottled rosy-lilac colour.

P. prænitens picta. A very beautiful variegated variety, the leaves of which are marked with a broad silvery belt or margin, occasionally passing into broad bars of rich creamy-white. This very rare and attractive plant appears less free and luxuriant in its growth than the foregoing, and is proportionately slower to multiply. It produces a fine contrast with the darker green leaves of other plants, and forms a handsome object for decoration in the winter months.

P. prænitens erecta superba. This variety has but recently been originated at Erfurt, in Prussia. The plants show a neat sub-erect habit, with rounded-oblong leaves, having dentated obtuse marginal lobes, which are cut in from a half to three-quarters of an inch, the lowest opposite ones, by overlapping, giving a sort of cucullate character to the base of each leaf. The entire plant is surfaced with soft hairs, and is otherwise marked by its dark crimson-red leaf-stalks. The elegantly fringed flowers are produced in flattish racemes, each including from ten to fifteen blossoms of a rich carmine-tinted rose colour, prettily contrasted with a small golden-yellow centre.

P. prænitens kermesina (sometimes called *carminata*). This can only be regarded as one of the varied forms having the general characteristics of the original type, with the distinguishing feature of producing very pretty and delicately-coloured salmon-tinted rosy-red flowers. It is now, however, superseded in interest by the variety called *erecta superba.*

The culture of the Chinese Primrose is generally so well understood that it will not be requisite to offer more than a few suggestive remarks. For a supply of autumn-blooming plants, the seed may be sown in March or April, in a well-ventilated genial warm house or pit. The seed pans or pots should not be plunged, a gentle surface heat being sufficient. As the seeds germinate, as well as after, they should not be exposed to a too close and humid atmosphere either by day or night; thus whilst warmth is required, judicious ventilation is equally requisite. When the seedlings require transplanting into separate pots, they should, after being root-established by a course of close treatment, be removed from the first forcing house or pit to a drier house or frame, and encouraged to make slow but continuous growth, which will be effected by having a moderately close warm atmosphere maintained in the day, and by being kept cooler at night. On being removed to pots of five, six, or seven inches in diameter, they should be kept gently growing in pits or cool greenhouses throughout the summer months, observing to maintain a free but regulated ventilation; shading the plants from intense sunlight for five or six hours as required, and gradually exposing them fully at intermediate periods, such as on calm mornings and evenings, or during dry but sunless days. Towards September and October they may be removed in successive groups to a warmer house or pit, to stimulate the growth for bloom. All premature flower-scapes should be pinched off until within one month or six weeks of the season when bloom is required. To obtain a later succession for winter and early spring decoration, the seed may be sown in June and July, observing a similar after-treatment to that already described, but allowing a warmer temperature towards the late autumn months.

The occasional failures complained of in the germination of the seed may arise from exposing it to excessive heat, or by subjecting the first vital germs to alternate extremes of drought and moisture through omitting until morning the requisite daily or evening waterings. An undue exposure of the seed after its germination to the temperature of a close moist hotbed by night is also often fatal to the tender germs.

All the varieties of this useful plant thrive in a mixture of three parts of well-pulverised turfy loam, and one of well decomposed manure, or leaf-mould, with the usual portion of one-sixth part of pure river or white sand. Where the loam is of inferior quality, an addition of one-fourth part of well-pulverised turfy heath-mould will improve its texture. If the soil is not sufficiently enriched previous to being used, an occasional application of diluted manure water will stimulate the growth as required; but in all cases it should be given in the growing season, and when so applied a short time previous to the expansion of the flower-buds, it will aid in imparting an extra size and richer colour to the blossoms.

SWAINSONIA VIOLACEA.

Miss Sowerby, Delt. Printed by C. Chabot.

PLATE LXIX.

SWAINSONA VIOLACEA.

THE most desirable plants for greenhouse culture are undoubtedly those which possess the valuable feature of a long-continued blooming period, combined with a compact habit of growth, and neat proportions in the foliage and flowers. Such qualities are more or less essential to plants intended for medium-sized pot culture and conservatory decoration. A considerable difference in the degree of interest they excite is doubtless observable amongst plants in general, for when viewed apart from their attractive blossoms, there remains a remarkable diversity as to their growth. A neat prepossessing style of growth is inherent in some species, and to some extent forms an attractive feature without bloom. It is also interesting to observe in plant-groups a kind of compensative law, whereby the relative deficiency of interest in one species is amply made up for by another in the same tribe: for example, the robust-habited and sparingly-branched species of a genus are often productive of the larger and finer flowers or collections of flowers, though perhaps they are limited in their duration or succession; whilst other species, distinguished by a smaller and less striking habit of growth, are often productive of flowers or flower-spikes, smaller indeed, but in such profusion and continuance as to constitute more than an equivalent for want of size or brilliance. Several of the species allied to the plant which forms the subject of the present Plate may be referred to as are illustrative of these remarks.

Swainsona violacea, which is represented in the accompanying figure, was raised by the Messrs. E. G. Henderson & Son, of St. John's Wood, from seed received direct from the interior of Australia, as that of a reputed species of *Clianthus.* It is most nearly allied to *S. Greyana* in its character and growth, but is a much finer species, the most stately and beautiful, indeed, of its family. It forms a vigorous-habited, half-shrubby, slender plant, from two to five feet in height, with smooth, glossy, sub-herbaceous stems, and rather thinly placed dark-green winged or pinnate leaves, six to eight inches in length, the rachis or foot-stalks of which are slightly covered with short appressed silvery hairs, the leaflets being obtusely oblong in shape, and ranged in nine or ten opposite pairs, with an odd one at the end. Their under surface, with the base of the upper one, and the margins, are also furnished with similar silvery hairs. The first plants matured their blossoms in the early spring and summer months, from April until July. The flower-stalks are axillary and erect, from four to six inches in length, slightly grooved on the surface, and supporting a raceme of from eight to ten or more large rich violet-purple flowers, each about three-quarters of an inch in diameter. The upper kidney-shaped petal is emarginate at the top, and marked at the base with a creamy-yellow blotch; the short oblong side or wing-like petals are a quarter of an inch in width, and nearly equal in length; whilst the front petals forming the keel are violet-red, and curled up in a convolute manner, with a rounded club-like extremity, which is also singularly elongated and curved upwards. The principal season for flowering is during the early

summer months, but by pruning back the spring growth after the first blooming period, the plant shows a disposition to form new blossom buds on the later summer and autumn growth.

After its flowering is over in the greenhouse, this *Swainsona* appears well adapted for planting out in the open air against a warm south wall, where it should be encouraged to make fresh growth from the base. It thrives well in a compost of two-thirds of loam and one of heath-mould. When a compact growth is obtained in autumn, it should be again re-potted carefully, and placed in a close cool pit or frame until re-established, being afterwards gradually exposed to free ventilation. On the approach of winter it may be removed to a cool greenhouse or conservatory. For special culture in pots it should, after flowering, be uniformly pruned back to induce renewed growth during the late summer and autumn months in a cool pit or frame; and when the growth is thus obtained, the plants may be gradually exposed, and placed upon a dry-surfaced border in the open air for a few weeks, to ripen their young shoots previous to their being housed for the winter.

The most desirable species of *Swainsona* for general culture are the following:—

S. galegifolia: a neat shrub of compact habit, with narrowly-winged or pinnate leaves, and numerous axillary trusses of reddish rose-coloured flowers. Its continuous bloom throughout the summer months renders it valuable in collections of greenhouse and conservatory plants.

S. galegifolia alba: this is a very pretty variety of the foregoing species, of similar habit as to growth, and readily distinguished by its lighter green aspect, and its long-continued succession of snow-white blossoms, which are produced for a period of several months.

S. Osborni: an elegant species, of more slender and erect habit than the preceding kinds; with glossy red-tinted stems, and narrow pinnate leaves, each consisting of from ten to thirteen opposite pairs of smooth, dark green linear leaflets, the tips of which are retuse or emarginate. The flowers are borne in open attenuate spikes, and are of a rich violet-rose colour, delicately traced over with darker lines, the upper petal being marked with a greenish-yellow spot at the base. The singularly corrugated surface of the small green calyx or flower-cup forms a pretty contrast to the rich dark violet tint of the unopened flower-buds.

S. Osborni atropurpurea: a beautiful variety of the preceding species, having a similar habit of growth, with elegant pinnated velvety leaves, formed of narrow linear leaflets. The blossoms are produced in numerous racemes, and are of a rich violet-crimson colour, the upper petal being prettily marked with a clear white spot at the base, whilst the small green tooth-lobed calyx differs from that of the parent in being nearly smooth.

Though the various species of *Swainsona* have been found to succeed well when planted against a wall on a warm border, and protected through the winter months, they are much more interesting and valuable when grown as pot plants, and trained so as to induce a shrubby branching habit. Their neat foliage, and the long-continued succession of blossoms, render them well deserving a place in all miscellaneous collections of greenhouse plants.

1. STRAWBERRY: TITIEN. 2. REINECKIA CARNEA VARIEGATA.

ILLUSTRATED BOUQUET.

PLATE LXX.

THE TITIEN STRAWBERRY.

(Fig. 1.)

THIS variety of the Strawberry is offered as a valuable addition to those already in cultivation. It commends itself as being perfectly hardy, and a very vigorous grower, succeeding well in cold soils, where the variety known as the British Queen fails, from its more delicate constitution. As one of the brighter coloured varieties of this favourite fruit it will be found to furnish a beautiful and desirable feature in the dessert. The fruits of the Titien Strawberry are of full medium size, and differ from that of most other varieties by their conical-oblong form. In colour they are of a rich glossy scarlet, paler than appears in some copies of our plate. The flesh is firm and solid, white at the centre, and gradually passing into a rich carmine-red tint towards the surface; it is remarkably juicy and finely flavoured. The variety will rank with the Filbert Pine section, and is an abundant bearer.

The following list includes a selection of the most approved kinds in cultivation for large crops in beds, for early forcing, and for succession in the dessert service:—

Black Prince: very early; a great bearer, and a valuable forcing kind.

Bicton Pine: fruits large, white, and having a brisk pine-like flavour.

British Queen: fruits large and fine, of very rich flavour; requires a warm soil.

Carolina superba: a better bearer than the British Queen, equally large, and as exquisitely flavoured.

Crimson Queen: fruits very large, and bright cherry-coloured; a free late bearer, with high flavour.

Eclipse: early; fruits large and handsome, of very rich flavour.

Empress Eugénie: fruits very large, early, and a free bearer.

Elton Pine: a valuable late kind, and a heavy cropper.

Eliza (Myatt): superior in flavour to the British Queen, and hardier in growth.

Filbert Pine, or *Myatt's Seedling:* a long-continued late bearer, the fruit of fine flavour.

Frogmore Late Pine: fruits large, richly coloured, and excellent in quality; continues bearing till late in the season.

Keens' Seedling: fruits scarlet, early, and of fine flavour; one of the most generally useful sorts grown.

May Queen: the earliest strawberry of large size, highly flavoured, and adapted for forcing.

Oscar: fruits large, rich, deep crimson; early, and a great cropper; remarkably firm-fleshed.

Prince Arthur (Ingram): medium size, brilliant scarlet, fine flavour, and abundant bearer.

Prince of Wales (Ingram): fruit very large, richly flavoured, and early; a fine forcing variety.

Rifleman: fruits large, highly-flavoured, and dark coloured; very prolific, and a late bearer.

Sanspareil: fruits dark red, conical-oblong, very firm, and richly flavoured.

Sir C. Napier: fruits large, bright red, early, and a great bearer.

Sir Harry: fruits large, early, and richly flavoured.

AUTUMNAL STRAWBERRIES.—*Galande:* large red. *Red Alpine:* smaller red. *White Alpine:* white-fruited.

REINECKEA (SANSEVIERA) CARNEA VARIEGATA.

(Fig. 2.)

The typical form of the species illustrated in the accompanying plate was introduced to English gardens about 70 years ago from China, and not being otherwise desirable than as a botanical acquisition, it is now a scarce

plant, and at present is to be found, and that but rarely, only in botanical collections. The beautiful variety now offered to notice is also a native of China and of Japan; and for its introduction cultivators are indebted to Mr. Von Siebold.

Reineckea carnea variegata forms a neat dwarf cool frame or hardy evergreen herbaceous plant, nine to twelve inches in height. Its crown shows a disposition to form underground rhizomatous stems, which as they reach the light expand into distichous leaf-crowns. The above-ground stems vary from one to two inches in height. The leaves are imbricated and sheathed at the base, from nine to twelve inches in length, sufficiently wide at the base to form a socket-like insertion, from whence they assume a tapering acuminate outline, and take an elegantly decurved and drooping direction from their mid-length to the extremity. The leaf surface is streaked, and shows a lively green ground tint, beautifully ribbed with rich yellow in the younger state, this passing into a clear creamy white in mature growth. The violet-red flower-scapes produced from the leaf axils are three to four inches in length, and bear dense oblong terminal racemes of small flesh-coloured starry blossoms. The delicate blush-tinted petals, with the brightly striped leaves and golden anthers, present a beautiful contrast with the deep violet-red of the flower-scapes, bracts, and buds.

On comparing the figure of the original form of *Sanseviera carnea* as given in *Andrews' Botanical Repository*, t. 361, with the plant above described, there appears sufficient evidence to induce a doubt as to the specific identity of the two. Apart from the far greater beauty of the plant we now figure, the contraction of the lower portion of the leaf upwards for one-third of its length, as represented by Andrews, is strikingly at variance with the condition of our present subject, in which the base of the leaf is uniformly the widest part. This distinctive feature alone suggests as a plausible inference that this variegated form belongs to a distinct species. Allowing for the fact that *Sanseviera carnea* was treated as a hothouse plant at the period when it was figured, the respective features of the two appear to be too much opposed to admit of their being regarded as identical.

One of the most telling plants allied to *Reineckea*, of recent introduction, is that known as *Sanseviera javanica*. It is an evergreen stemless hothouse plant, with broad, lengthened, oblong-lanceolate, erect leaves, one and a half to two feet in length, and three to four inches in width, of a thick, firm, rigid, leathery texture, with convolute margins when young, but expanding nearly flat so as to form rounded shallow grooves when old. The upper surface is dark green, diversified by broken bars and flakes of a pallid green tint, while the under surface shows a still brighter green ground tint, marked by similar pale-coloured blotches.

PRIMULA PRÆNITENS, VAR. ATROROSEA PLENA.

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PLATE LXXI.

PRIMULA PRÆNITENS ATROROSEA PLENA.

AMONGST the numerous species and varieties of winter-flowering plants which now exist in our gardens, those which are suited to the usual temperature of the greenhouse and the drawing-room may be considered the most valuable in consequence of their adaptation to the greater number of plant structures, and still more so by reason of their capability of bearing removal without injury from the atmosphere in which they are reared, to the very different conditions which occur of a living apartment. Of such as these, the Chinese Primrose, variously called by botanists *Primula prænitens* and *P. sinensis*, is, in its improved forms, one of the most generally esteemed in cultivation. The easy culture of these plants, together with their neat habit and convenient size for portable baskets and vases, and the long continued succession of gay blossoms which they produce throughout the midwinter and early spring months, are the chief features which have rendered them the most popular perhaps, and certainly amongst the most effective, of winter-blooming plants.

Of the double-flowered section of Chinese Primroses, which forms the subject of the following remarks, the variety illustrated in the accompanying plate—*P. prænitens atrorosea plena*—is one of the most beautiful hitherto produced. Its moderately vigorous growth is no small recommendation, while its deeply-tinted crimson leaf-stalks form a lively contrast to the rich verdure of the leaf-blades. The blossoms are produced in large corymbose trusses, and are of a rich crimson-tinted rose-colour, each nearly one and a quarter inch in diameter, and elegantly fringed. The plants commence blooming early in the season, and are consequently available for decoration from November until February or March, thus enabling the cultivator, by means of plants of different ages, to ensure a successive display of flowers, just as may be done with various other winter-flowering plants.

The double-flowered forms of the Chinese Primrose retain their blossoms both on the truss, and also in a fresh state, longer than the single ones. The principal precaution required in their treatment during the winter months is the avoidance of water in contact with the centre or crown of the plant, where it is joined by the base of the leaves; this is easily accomplished by effecting the usual waterings with a tubed spout, and by pouring the water close to the sides of the pot. The summer treatment is similar to that already given (see Plate LXVIII) for the single-flowered varieties.

The following, in addition to the subject of our plate, are considered the most valuable of the double-flowered varieties in general cultivation for the decoration of the greenhouse or conservatory.

P. prænitens rosea plena.—This is the original variety, with double rose-coloured plain-margined flowers, and has been long known in gardens as the Double Crimson; it is a dwarf free-blooming plant.

P. p. alba plena.—The double-flowered variety, with plain margined white flowers, long known as a valuable conservatory plant. From its free habit and long-continued production of blossoms, it still retains its interest as a low-growing decorative greenhouse plant.

P. p. albo-plena fimbriata.—This is the finest of the white-flowered double varieties, and is similar in its dwarf habit to that last described; its snow-white double blossoms change to blush, and are elegantly fringed. The plants yield a profusion of blossoms throughout the winter months, so that they form beautiful objects for conservatory groups and for drawing-room vases.

P. p. nivea plena.—A variety of very free-blooming habit, with fringed semi-double white flowers.

P. p. rubella plena.—This pretty variety differs from others by its leaves assuming a more divergent character, and by their prominently-lobed margins, as well as by the richer red crimson of the semi-double flowers. Both it and the variety previously described are reproduced true from seed.

The following are varieties of more recent introduction to garden collections, and possess remarkably ornamental features.

P. p. candidissima.—Flowers of large size and fringed, white, changing to blush, of a free-blooming habit.

P. p. delicata.—Flowers large, with fringed margins; colour white, delicately shaded with blush; one of the finest of the double kinds.

P. p. Fairy.—Habit dwarf and open, with profuse bloom; blossoms fringed, flesh-colour, changing to deeper blush.

P. p. purpurea erecta.—Habit vigorous and free-blooming; flowers large, rosy-purple.

P. p. rubra grandiflora.—Flowers large, of a deep purple-crimson colour, with fringed margins; a very fine variety.

FUCHSIAS.

1. Princess of Wales. 2. [illegible] 3. Madan[illegible]elle [illegible].

ILLUSTRATED BOUQUET.

PELARGONIUM ZONALE.

Mrs Withers Delt.

Printed by C Chabot

1 Madame Rudersdorff. 2 Beauty.
3. Alexandra.

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PLATE LXXII.

NEW FUCHSIAS.

THE varieties of Fuchsia pourtrayed in the accompanying plate have been originated by the most successful of modern cultivators of new kinds—one whose productions in this popular family occupy the most prominent places in collections where real merit is made the standard. Those now figured are specially adapted for conservatory decoration. The varieties represented at figs. 1 and 2 are distinguished by their large size and graceful outline, as well as by their brilliant colours, qualities which render them suitable for pyramidal specimens. The light kind shown at fig. 3 is of medium vigour in respect to growth, but its free and compact habit renders it especially suitable for the front rank in the composition of conservatory or greenhouse groups.

Fig. 1. Princess of Wales: Sepals recurved, of a bright coralline-red tint; corolla large, well expanded, violet-tinted blue. A very effective plant in its style of growth.

Fig. 2. Emblematic: Sepals rich crimson, finely reflexed; corolla large, of a beautiful lavender-blue tint. This plant is of a well branched habit of growth.

Fig. 3. Mademoiselle Tietjens: Sepals white, gracefully recurved; corolla bright rose colour. This sort is in its growth dwarf, compact, and well branched.

PLATE LXXIII.

NEW BEDDING PELARGONIUMS.

THE varieties represented in the accompanying plate are examples of high merit in their several sections; they are of excellent habit in respect to growth, and are productive of a full show of bloom for decorative purposes in beds and ribbon borders. That represented at fig. 1 is the first in its peculiar class, which is adapted for large groups by its profusion of bloom, and the effect of its colours in such situations must be unique. That

shown at fig. 2 possesses first-class qualities for pot or vase culture in conservatories and terrace fronts; while fig. 3 represents a variety calculated to form a fine contrast as a middle row flower in a ribbon line between dark scarlets or crimsons. Our artist has failed to bring out the rich carmine tints peculiar to the two first-named varieties.

Fig. 1. Madame Rudersdorff: Bright carmine salmon, margined with pure white; large truss; fine form; dwarf, unique, and beautiful.

Fig. 2. Beauty: Style of François Desbois; trusses large; flowers of model form, snow-white, with a beautiful salmon centre.

Fig. 3. Alexandra: Style of Christine, but of a richer colour, being a pure magenta-tinted rose, and forming an exquisite contrast with scarlets, or crimsons.

PLATE LXXIV.

NEW POMPON, OR BOUQUET DAHLIAS.

THE varieties of Dahlia now illustrated are adapted for the decoration of the flower-garden. Those shown at figs. 1, 2, and 5, belong to the class of Bouquet or bedding varieties, being compact in growth and brilliant in colour; they are well suited for groups, ribbon lines, or single specimens. Those shown at figs. 3 and 4 are beautiful examples of the small Pompon race, bearing a profusion of exquisitely formed flowers, almost liliputian in size, and richly tinted in colour, and therefore admirably adapted for cut-groups and vases.

Fig. 1. Fireball: Brilliant orange-scarlet, ball-like in form, and profuse; it grows from 2 to 3 feet in height.

Fig. 2. Meteor: Bright golden yellow, fine form, and abundant bloom; 2 to 3 feet high.

Fig. 3. German Daisy: Beautifully shaded rose colour, liliputian in size, and of model form; 18 inches to 2 feet high.

Fig. 4. Fairy Child: Rich self-crimson, with white marginal tips; an elegant flower for bouquets and vases.

Fig. 5. Crimson Dwarf: Rich red-crimson, of medium size, fine form, and an abundant bloomer; it grows from 2 to $2\frac{1}{2}$ feet in height.

In the varieties which form the subject of the foregoing plates (LXXII to LXXIV) we have some of the most striking varieties of certain popular flowers which have been yet obtained. In few indeed of our garden favourites have such advances been recently made as have occurred amongst Fuchsias and Horseshoe-leaved Pelargoniums, whilst the Dwarf or Pompon Dahlias are altogether flowers of modern creation.

DWARF DAHLIAS.

1 Fireball. 2 Meteor
3 German Daisy. 4 Fairy Child
5 [illegible] Dwarf

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IXORAS.

Miss Sowerby [illegible]

Printed by C Chabot.

[illegible]

[illegible]

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PLATE LXXV.

NEW IXORAS.

AMONGST hothouse plants, the various species of *Ixora* have long been distinguished for their grand and effective features, which here only require to be briefly adverted to. These features comprise a richly evergreen habit, comparatively dwarf and compact growth, and brilliant yet varied colours, added to which the plants yield by their variety a succession of bloom throughout the summer and autumn months.

The production of new varieties possessing special features of merit, has always been a desirable object in horticulture, and it is only by means of hybridizing with species of opposite, yet desirable features, that such additions, combining the individual merits of different species, is to be obtained.

I. ACUMINATA, represented at fig. 1 of the accompanying plate, is a desirable species, and may be commended as the finest of the white-flowered kinds. It forms a handsome dwarf compact shrub of free branching habit, and bears dark green partially waved leaves of an oblong outline, each attached by a short dark brown petiole. The flowers are produced in close cymose heads at the extremities of the shoots; they are pure white and very fragrant. A desirable feature of this species consists in its adaptability for cultivation in pots of six or eight inches diameter, in which it blooms freely; and continuing thus in successional groups from May until December, it is worthy of a place in all select collections of tropical plants.

I. CROCATA SUPERBA, the higher coloured variety represented at fig. 2, is a beautiful and improved form of the species with whose name it is identified, possessing in a considerable degree the dwarf branching free-flowering habit of *I. crocata*, with the brilliant flower tints of *I. javanica aurantiaca*. Its leaves are comparatively small, of a darkish green, obtusely oblong in outline, and narrowing downwards from the centre towards the base. The flowers are borne in large terminal clusters, and are of very rich salmon red with broadish rounded lobes. It produces its blossoms freely in pots of five inches and upwards in diameter, and is well adapted for cultivation in establishments where the convenience is limited, while its free and vigorous growth renders it suitable for exhibition in competition groups.

Of the other kinds of *Ixora* in our gardens, the following are considered the most desirable :—

I. alba.—The ample dark green glossy leaves of this prolific flowering species form a rich contrast with the large conspicuous ball-like clusters of snow-white blossoms. It is, under superior culture, a beautiful plant for the later summer exhibitions of tropical plants.

I. salicifolia.—This very beautiful species is justly considered as one of the most effective plants in its tribe, and the most distinct in habit yet known in collections. The long gracefully decurved lanceolate leaves, of a peculiar glaucous green tint, clothe the branches to near their summits, and each branch is surmounted by a large terminal cluster of light flame-tinted flowers, which pass in maturity into a rich orange or dark flame colour. When it blossoms, this plant forms a unique and beautiful feature amongst hothouse shrubs.

I. javanica aurantiaca.—A plant of freer growth than most of

the allied kinds, of rather taller habit, and more graceful and diffuse outline. The leaves are oblong-acuminate, and the flower-heads are borne terminally, and consist of from three to six or more hemispherical clusters of rich dark flame-orange coloured blossoms. Of this fine species there are one or more rich fawn-yellow varieties.

I. coccinea.—This species is so well known to cultivators, as to render any description superfluous. Its large and compact sub-globular flower-heads, of a brilliant orange-scarlet colour, and its rich glossy oblong laurel-like leaves, render it a handsome shrub of from 2 to 4 or 5 feet in height, admirably adapted to take a place among first-class subjects in competition groups.

I. amboinensis.—A free growing and prolific blooming kind in its mature growth. Its style of growth resembles that of *I. javanica*, being somewhat open or spreading-branched. It has lighter green, broadish elliptic-oblong leaves, and the terminal flower-clusters are large, inclining to a depressed hemispherical outline, and of a brilliant red-tinted orange colour.

I. rosea.—This is a very distinct and interesting species, in consequence of its neat but free growth, and compact yet open-branched dwarf habit. The numerous terminal flower-heads which diverge into triple clusters of elegant tubed rose-tinted blossoms, render it a desirable plant for all general collections. It forms also a good competition plant of secondary size, and is so prolific of bloom as to maintain a desirable succession during the summer and early autumn months.

PLAN OF THE PLANT HOUSES &c,
IN
MESSRS E. G. HENDERSON & SON'S NURSERY,

HEATED BY HOT-WATER APPARATUS, EXECUTED BY JOHN WEEKS & Co, KING'S ROAD, CHELSEA.

WINTER-BLOOMING HOTHOUSE PLANTS

ADAPTED FOR DECORATIVE EFFECT FROM LATE AUTUMN UNTIL EARLY SPRING.

The species and varieties of Winter-blooming Plants, which are briefly noticed below, have been selected for annotation on account of their being well adapted for ordinary general management; those having been excluded which are subject to casual failure, or are otherwise of difficult growth.

The plants necessarily requiring the longest period of growth to obtain a profusion of bloom are those of a climbing habit; the exception being those species which are only of annual or biennial duration. As a general rule, in regard to the culture of such plants, the first season is required to obtain an established root-growth, while the second is generally productive of matured vigour of growth and bloom. With climbing plants, under the best management, a second season's growth is requisite to obtain that extent of growth which is equal to yield an ample succession of bloom, the exceptions to this rule occurring in the case of those species which are of a free-growing soft-wooded nature.

The exuberant vigour of some plants, such as the species of *Heterocentrum*, and of other genera allied to *Melastoma*, require that a little special management should be brought to bear upon them in order to check their branch growth, and to induce a tendency to form flower-buds. The most profuse flowering subjects, yielding a succession of bloom for drawing-room bouquets, are the various species of *Begonia*, with *Celosia pyramidalis*, *Euphorbia jacquiniæflora*, and *splendens*, *Gardenia* of various species, *Gesnera elongata*, *Hexaventris mysorensis*, *Impatiens latifolia alba*, *Jasminum grandiflorum*, *Manettia bicolor*, *Pentas carnea roseo-kermesina*, *Torenia asiatica pulcherrima*, *Tydæa gigantea*, &c.

Where a great variety of winter flowers is required from the hothouse department, the extensive and beautiful tribe of *Amaryllis* or *Hippeastrum* becomes very valuable, admitting of successive groups for decoration being brought on by forcing. The new varieties of *Tydæa* (*Achimenes*), with suffruticose growth, are also especially interesting and useful on account of the long succession which they yield of picturesquely spotted rose and crimson salver-shaped blossoms.

Amongst the miscellaneous plants which are in a few instances becoming rare in cultivation, and amongst others which are somewhat indefinite in respect to the earliness or lateness of their winter-flowering habit, the following are interesting and valuable in their respective periods, either on account of their beautifully coloured leaf-bracts or involucres, or otherwise by their freedom of growth, and succession of bloom; namely:—*Impatiens Hookeri*, white and crimson; *Guzmannia picta*, violet-crimson leaf-bracts; *Geissomeria longiflora*, scarlet; *Justicia speciosa*, purple; *Vriesia psittacina*, scarlet and yellow; *Sericographis Ghiesbreghtiana*, crimson scarlet; *Justicia calytricha*, or *flavicoma*, canary-yellow; *Tradescantia odoratissima*, blue and white; *Sonerila margaritacea*, and other species, light rose-pink; *Cypripedium barbatum*, violet-purple and white; and *C. insigne Maulei*, buff-yellow and green with brown spots, the back sepal strongly tipped with white, &c.

A well regulated succession of hothouse plants from the various genera and species now to be referred to, will yield a succession of flowers throughout the entire winter. Where decorative effect is required, and the growth or habit of particular species is unfavourable to the production of handsome single specimens, the grouping of several plants in one pot is recommended.

Aphelandra aurantiaca : A dwarf shrub, of neat erect growth, from 6 to 12 inches in height, bearing broad laurel-like leaves, and close terminal racemes of bright orange-scarlet flowers.

Ardisia crenulata, and *crispa* (*Sieboldi*) *:* These well known and attractive plants are of a neat, dwarf, and compact shrubby habit, 1 to 2 feet in height, with dark evergreen, glossy, oblong, and lanceolate leaves, which are finely contrasted in the winter and spring months with a profusion of rich scarlet berries. Of the species last named there is an interesting variety with light yellow berries.

Begonia fuchsioides : A valuable sub-shrubby species, growing from 2 to 5 feet in height, having a sub-erect freely branched habit, comparatively small leaves, and a profusion of rich scarlet blossoms, in drooping cymose panicles.

Begonia insignis : An erect growing suffruticose plant, 1 to 3 feet in height, furnished with glossy oblong-acuminate leaves. The flowers, which are of a richly shaded rose tint, borne in graceful pendulous bunches, are produced in great profusion.

Begonia parvifolia : A small neat dwarf species of a densely branched habit of growth, from 8 to 12 or more inches in height. The leaves are small; the flowers numerous, snow-white.

Begonia manicata : One of the finest and most interesting of the large-leaved species. The leaf-blade is obliquely heart-shaped, 6 to 8 or more inches in width, fringed with crimson hairs, the under surface as well as the leaf stalks being scattered over with flat fingered crimson-tinted bristles. The flowers are small, very numerous, of a delicate blush tinted with pink, and borne on long-stalked erect cymose panicles above the leaves.

Begonia semperflorens major : An erect growing plant, from 1 to 2 feet in height, with sub-cucullate glossy rounded ovate leaves, and conspicuous snow-white blossoms borne throughout the year.

Bignonia venusta : A large growing and extensively rambling climbing shrub, suitable for borders, or pots in hothouses. It has triternate leaves, producing, in mature growth, a profusion of brilliant orange-coloured trumpet-shaped flowers.

Bilbergia thyrsoidea : An evergreen stemless herbaceous plant, 12 to 18 inches in height, with a dwarfish pine-apple like growth, but with broader and shorter leaves. The flowers are small and crimson; but, as in the majority of the species, the principal ornament arises from the beautifully coloured bracts, in one of which each flower is primarily enveloped. In the present species the bracts are of a rich rosy-crimson hue.

Calliandra hæmatocephala : An elegant Acacia-like shrub, with pinnate leaves, and ball-like clusters of rich crimson flowers, the colour of which is contributed by the filaments of the stamens.

Canna Warscewiczii : A stately sub-evergreen herbaceous plant, from 3 to 5 feet in height, with large, broad, oblong leaves of a dark chocolate-red hue, and upright spikes of rich crimson flowers. Many other fine new varieties are also adapted for winter blooming, in succession to the one here named.

Celosia pyramidalis : A highly ornamental annual plant of erect habit, from 2 to 4 or more feet in height, producing numerous dense terminal flower-spikes, forming in the aggregate a pyramidal or conical inflorescence. The numerous florets are of a rich crimson colour, varying in density and in hue.

Celosia pyramidalis aurea : This variety is similar in its style of growth to the preceding, and is equally effective. In varieties produced from seed, the colouring of the flowers varies from a bright lemon to a rich golden yellow.

Centradenia grandifolia : A neat sub-shrubby plant growing from 1 to 2 feet in height, and particularly noticeable as having the most desirable habit of growth of any species of its family. It has obliquely-oblong acuminate leaves of a rich crimson hue beneath, and dark green above; while the flowers are borne in paniculate cymes, and are of a lively rose-colour. The drooping character of the leaves adds to the graceful aspect of the plant.

Clerodendron splendens : An evergreen twining shrub, with dark green laurel-like leaves, and terminal racemes of brilliant scarlet blossoms.

Cyrtodeira cupreata and its variety *viridifolia* (*Tapina splendens*)*:* These are very elegant dwarf decumbent evergreen herbaceous plants, with a stoloniferous habit of growth, and having obtusely-oblong villose leaves, and brilliant orange-scarlet salver-like blossoms from the axils. In the one the leaves are of a coppery hue, in the other green: the latter being a beautiful variety with brighter coloured flowers. Both are well adapted for suspended baskets, or for vase or pot-culture.

Epiphyllum truncatum multiflorum, aurantiacum, and *violaceum :* This beautiful species, with its varieties, though regarded as a warm greenhouse plant, is admirably adapted for hot-house decoration, in consequence of its natural adaptation for blooming in that department in the winter months. The varieties above-named are amongst the most distinct attractive and free flowering at present in cultivation.

Eranthemum pulchellum : A neat dwarf shrub of a freely branched habit, with strongly nerved ovate leaves, and numerous short terminal spikes of very rich blue salver-shaped flowers.

Euphorbia jacquiniæflora (*fulgens*) *:* A slender erect-growing shrub, from 1 to 4 or 5 feet in height, having pliant rush-like stems, with willow-like leaves, and numerous brilliant carmine-orange coloured flowers. It is well adapted for forming flower wreaths, and in any form is remarkable for its beauty. In this family the showy part of the inflorescence consists of the involucral bracts: not the flower proper.

Euphorbia punicea : A neat dwarf sparingly-branched shrub, with dark green velvety spathulate leaves, and small terminal clusters of very rich crimson blossoms.

Euphorbia splendens : A robust spiny-stemmed shrub of branching habit, from 1 to 4 feet in height, with spathulate oblong leaves, and numerous rich carmine-crimson flat twin-lobed blossoms. For supplying bouquets or portable flower baskets it is specially valuable, as it produces a succession of bloom throughout the year.

Franciscea uniflora (*Hopeana*) *:* A neat dwarf shrub, from 9 to 18 inches in height, of branching habit, with privet-like leaves, and numerous salver-shaped fragrant flowers, of a purple colour, becoming paler, almost white in age.

Gardenia citriodora : This species is perhaps the prettiest plant in its tribe, and though attaining from 2 to 3 feet in height, it blooms profusely when quite of a diminutive size. Its delightfully fragrant flowers form an excellent substitute for those of the orange.

Gardenia florida: This well-known species and its varieties (including the beautiful *G. Fortuni*), being taller in growth, and having rose-like pure white flowers proportionately larger than in other Gardenias, are most suitable where larger bouquets are required. For this purpose, and for special decoration, they are indispensable in collections generally.

Gardenia radicans major: Amongst the larger double-flowered species, this fine variety is the most dwarf and compact. Its general stature is from 9 to 12 inches or more in height, and it bears neat foliage, and comparatively large and richly fragrant snow-white flowers. It is one of the best adapted for small collections.

Gesnera densiflora: A highly ornamental species of a suffruticose habit, from 1 to 3 feet in height, having soft hairy-surfaced oblong acute-pointed leaves, and numerous terminal, axillary, loose, half-drooping clusters of rich red-crimson inflated flower-tubes.

Gesnera cinnabarina: A perennial tuberous-rooted species with heart-shaped leaves, surfaced with exceedingly beautiful crimson plush-like hair. The blossoms are produced in a large terminal cone-shaped raceme, and are of a brilliant cinnabar-scarlet colour; one of the finest varieties is called *ignea.*

Gesnera Cliftoni: The style of growth of this fine variety is similar to that of *G. zebrina,* but it has greener leaves, less conspicuously blotched, and more evenly expanded. The flower-spikes are terminal, and the large blossoms of a bright orange-scarlet. It is a very handsome plant.

Gesnera elongata: A shrubby species of free erect growth, and branched habit, from 2 to 4 feet in height. It bears oblong-lanceolate leaves, and numerous terminal panicled racemes of rich salmon-tinted scarlet tubular flowers.

Heterocentrum mexicanum: A neat bushy plant of suffruticose habit, and free growth, having red-tinted square stems with comparatively small ovate-oblong nerved leaves, and terminal open many-flowered racemes of rose-coloured flowers. This species, with the variety described below, is best treated as a greenhouse or conservatory plant until the formation of flower-buds, and then slowly expanded in the stove.

Heterocentrum mexicanum album: This plant is similar in its style of growth and equally neat with the preceding, of which it is a variety, with racemes of white blossoms, which contrast well with those of the rose-coloured variety.

Hexacentris mysorensis: A neat and pliant stemmed twining sub-evergreen shrub, suitable for pot-culture or for being grown in the borders of the house. It has comparatively small leaves, and numerous drooping racemes of rich bronze-red and yellow blossoms, remarkable for the prolonged growth at the extremity of each flower spike.

Imantophyllum miniatum: A very handsome evergreen perennial plant, combining the habit of an *Amaryllis,* with that of the *Clivia,* but of a more robust and stately growth, being from 1 to 2 or 2½ feet in height. The leaves are rich dark green, ligulate or strap shaped, 18 to 24 inches in length and sub-erect. The flowers are borne in large umbellate clusters, and are funnel-shaped, in equal segments or lobes, of a rich creamy buff colour at the base, with the upper half of a beautiful light orange tint. *I. cyrtanthiflorum* and *I. Gardeni,* two allied plants, are also adapted for winter blooming.

Impatiens latifolia alba: A neat free dwarf branching plant, having smooth glossy stems, with smooth leaves of an ovate-oblong outline, and with numerous well expanded snow-white blossoms, which are upwards of an inch in diameter, and are produced in succession for several months.

Ipomœa Horsfalliæ: A very handsome evergreen climbing shrub, for the borders or pits of hot-houses. It is clothed with rich dark green palmately-lobed leaves, and bears a profusion of axillary trusses of bright crimson-tubed funnel-shaped blossoms.

Ipomœa rubro-cærulea: A very attractive hot-house climbing plant of annual or biennial duration, and remarkable for its free and extensive growth, reaching from 5 to 10 or more feet in length, and having heart-shaped leaves, and numerous large and extremely beautiful rich azure-blue convolvulus-like flowers, each from 3 to 4 inches in diameter. It is adapted for warm border culture, where it can rapidly attain mature growth.

Jasminum grandiflorum: This well-known species is adapted for cultivation either in pots, or borders at the cool end of a stove, or warm conservatory, where it forms a very neat, slender, sub-erect, half-trailing shrub adapted for a wall or trellis. Its neat habit of growth, and the succession of fragrant white flowers, tinted with purple, render it a desirable plant for the mid-winter months.

Manettia bicolor: A slender twining plant of suffruticose growth, and of a remarkably neat habit, suitable for pot culture. It is furnished with small oval-oblong leaves, and numerous cylindrical scarlet flower-tubes yellow at the tips. It yields a continuance of these blooms for several months.

Maranta sanguinea (Phrynium sanguineum): An evergreen perennial plant of Canna-like aspect, from 2 to 5 feet in height, with broad, dark-green oblong-lanceolate glossy leaves, and terminal axillary racemes of rich red-crimson blossoms.

Mussænda frondosa: A neat dwarf shrub, of branching habit, 1 to 2 or more feet in height, with oblong-acuminate leaves, and small yellow blossoms. Its most attractive feature consists in the very pretty snow-white leaf-bracts, each formed of an altered calyx-lobe, which are found at the extremities of the flowering branches.

Passiflora racemosa: A beautiful climbing species for border or pit-culture. It is furnished with glossy three-lobed or palmate leaves, and long terminal racemes (from 1 to 2 feet in length), of rich flame-tinted scarlet flowers.

Pentas carnea roseo-kermesina: A neat dwarf well branched suffruticose shrub, from 1 to 2 feet in height, with ovate-oblong leaves, and terminal umbellate clusters of rich rosy-red star-lobed slender-tubed blossoms.

Plumbago rosea: A sub-evergreen shrub of neat erect habit, having suffruticose stems, furnished with oblong acuminate leaves, and terminating in graceful slender upright spikes of conspicuous flame-red salver-shaped flowers. It forms a very distinct feature in miscellaneous collections of hothouse plants.

Poinsettia pulcherrima: A tall and rather robust shrub from 2 to 5 feet in height, with large obtuse oblong leaves lobed with here and there a projecting point on the margin, and having large terminal flat spreading crowns of brilliant carmine-scarlet leaf bracts. One of the most effective plants for decoration in the winter months.

Poinsettia pulcherrima alba: An erect sparingly-branched shrub, from 2 to 3 feet in height, having broadish oblong leaves

with a few pointed marginal lobes. The attractive feature of the plant consists in the singularly picturesque creamy-white terminal flower-like leaf-bracts, which contrast finely with those of the crimson variety.

Strelitzia reginæ: A handsome evergreen stemless plant from 2 to 3 feet in height, of robust habit, having broad obtuse oblong glaucous-green leaves on long stout foot-stalks. The large and beautiful orange and purplish-blue flowers are supported on firm upright flower-stems which are about equal in height to the length of the leaves.

Thyrsacanthus rutilans: A very ornamental shrub of a sparingly-branched habit, and of erect growth, attaining from 2 to 4 or more feet in height, and being furnished with nerved oblong lanceolate leaves, 6 to 9 inches in length; and very graceful pendulous spike-like racemes 12 to 18 inches long, of rich crimson trumpet-like flower-tubes.

Torenia pulcherrima: A free-growing herbaceous plant, of diffuse spreading habit, with small ovate leaves, and numerous rich violet-purple blossoms, the upper lobe having a conspicuous white blotch in front, the side lobes being of a paler ground-colour, and each picturesquely marked with a rich violet-purple spot. It is adapted either for suspended baskets or for vases, or pot-culture.

Tydæa gigantea: This handsome plant still ranks as one of the most valuable for continuous winter bloom in herbaceous perennials. It is of stout erect growth, from 1 to 2 feet in height, with greyish green pilose heart-shaped leaves, dappled with darker olive-green. The numerous axillary clusters of salver-lobed blossoms are a rich orange-yellow and carmine ground-colour, finely spotted with crimson.

Vriesia splendens (*Tillandsia splendens*): A dwarf stemless evergreen plant of 9 to 12 inches in height, forming a tufted crown of broadish linear-oblong leaves, imbricated at the base, and gradually diverging upwards; the under surface of each leaf is finely marked with broad dark chocolate-coloured horizontal bars. The most picturesque feature of the plant consists in the sword-shaped flower-scape, in which the flattened involucres or flower-sheaths are of a brilliant scarlet-colour.

ALOCASIA LOWII.

PLATE LXXVI.

ALOCASIA LOWII.

THE tribe of Arads has of late years contributed largely to the store of tropical plants to be found in our stoves, which are remarkable for the attractive colours and markings of their leaves, and afford rich and beautiful contrasts, very valuable in the composition of groups of hothouse plants at any period of the year. The easy culture of most of these plants is a special recommendation. The accommodating habit of many of them, moreover, admits either of their growth being continued by means of surface temperature, or of their being kept dormant for a given period during the mid-winter months by a temporary cessation of growth, which latter is often a great convenience to the amateur who has but limited space at command.

The beautiful species of *Alocasia* now illustrated, one of these Arads, was introduced to the Clapton Nursery from Borneo, by Mr. Hugh Low, and is now distributed amongst other establishments. It is a free-growing perennial, with crimson leaf-stalks rising from 1½ to 2 feet in height, and supporting large ovately-sagittate leaves which are from twelve to eighteen inches in length, and eight to ten inches in width at the broadest part, divided at the base, which in the natural position of the leaf stands uppermost, into two obtuse lobes, and terminating abruptly at the apex in a narrow acuminate point. The large central nerve or rib, with its main side veins, and also the margin, are of an ivory-white, strongly marked on the rich glossy bronzy-green of the upper surface, whilst the uniform rich crimson under surface adds greatly to their effect. The plant is highly attractive when grown for competition purposes, either singly or as part of a group; and it is one of the most suitable plants in its tribe, yet introduced, for decoration by night. It luxuriates in a genial, moist, warm atmosphere, and thrives in a compost made up of three parts light pulverised turfy loam and one of heath mould, blended with an extra fourth part of finely chopped white sphagnum and small charcoal knobs, or the same amount of cocoa fibre and charcoal. Where its highest vigour is required, it should be grown upon a duly regulated warm surface, by which means a succession of plants for decoration may be had throughout the year.

Our gardens now contain several other very ornamental species of *Alocasia*, and we may avail ourselves of some vacant space to offer a few remarks respecting one or two of them.

A. ZEBRINA.—This fine species, introduced by Mr. J. G. Veitch, is a robust sub-evergreen stove perennial herbaceous plant, from two to four feet in height. The large ovately heart-shaped leaves have sagittate lobes at the base, and are marked with very prominent surface nerves; they attain by vigorous growth from two to three feet in length, and from twelve to eighteen inches in breadth, and are borne on very beautiful stout footstalks, of a light green ground colour, elegantly banded in a zigzag manner by dark olive-green snake-like markings. These finely

marked leaf-stalks are well displayed by the erect habit of the plants, and have a highly picturesque appearance in contrast with the stately leaf-blades.

When grown to its highest degree of development, this plant makes a fine object for competition in large collections, alike whether grown singly or as a group of several plants in a pot. Its specific distinguishing feature renders it perhaps the most interesting plant in its family. It grows luxuriantly in three parts of pulverised turfy loam, and one of similarly prepared heath mould, mixed with an additional fourth part of cocoa-nut fibre or partially-dried leaf mould; and it requires ample pot room as it progresses towards mature growth.

A. Veitchii.—A novel and singularly beautiful species, of more slender growth than either *A. zebrina* or *A. Lowii*, which latter it otherwise resembles. It attains from two to three feet in height; and the elongated ovate arrow-head-shaped leaves, from sixteen to eighteen inches in length, and from eight to ten inches across at the widest part, are, according to the varied influence of light and heat, of a remarkably blended glaucous and olive-green tint on the upper surface, with the prominent midrib and main side nerves ivory-white, the margin being also narrowly bordered with ivory-white, and the green spaces between the main veins densely marked with depressed smaller nerves. The under surface is of an uniform rich chocolate-crimson. The comparatively narrow and attenuate basal lobes, and the acuminate extremity of the leaves, which are borne on purplish pencilled erect leaf-stalks, give this plant an unique and attractive character; and when in its highest vigour, it is one of the most elegant and graceful-habited species of its family.

Like other species of similar habit, it thrives best in a soil which is not too retentive, and in which a portion of chopped sphagnum or cocoa-nut fibre is added, to maintain a requisite porous texture, and unimpeded circulation of moisture, which, in connection with a warm genial temperature, is essential to its superior growth.

Many of the species of *Alocasia* being sub-evergreen are easily continued in fine foliage by the aid of a gentle surface heat throughout the winter months. The larger species are remarkable only for their colossal leaves, and, in the absence of any ornamental features, are only suited to large structures; but the three foregoing species, by their medium growth and attractive foliage, are fitted to form part of the most select collection of plants where permanent interest is required, and they also make fine exhibition objects.

GROUP OF EARLY TULIPS.

ILLUSTRATED BOUQUET.

Printed by C. Chal

PLATE LXXVII.

EARLY-FLOWERING BEDDING TULIPS.

OF the various flowers which may be recommended for the decoration of the spring flower-garden, and which are alike adapted to those of the largest as well as of the most limited capacity, the early-flowering Tulips, are especially valuable. The numberless varieties recently added, and the remarkably low growth of many of them, in connexion with their very attractive colours, eminently fit them for a place in the most select arrangements of spring-blooming flowers, among which they have a charming effect. Not many years ago, the flower-garden and dressed grounds in the vicinity of the mansion were very deficient in floral variety during the early part of the year, and indeed, up to the time of planting for summer and autumn display, the only available materials being certain perennial herbaceous plants, and occasional species of bulbs. By reason, however, of the irregular succession of their bloom, and the want of uniform growth, such plants as these were found quite inadequate to the formation of any beautiful design, or to the production of any gorgeous effect in the spring garden. To supply this deficiency upon a scale suitable to a variety of garden designs, the splendid collection of early Tulips, from which the subjects of our present illustration were derived, was formed; and even the limited scale upon which they are here represented is sufficient to show something of the rich and abundant material for garden decoration in the months of early spring, which may now be secured.

The absence of all difficulty in the culture of these bulbs, and the fact of their requiring no especial protection after planting, should bring them within the cognisance of all lovers of flowers, in proportion to the space they allot for summer plants, which they are admirably adapted to precede, either in beds or borders. The following varieties are selected from the finest collection in Europe as the most attractive of each colour; and they are arranged so as to show a constant succession of bloom from the early part of April until the last week in May:—

SCARLET.

Scarlet Duc Van Thol
Feu d'Anvers
Josephine
Vermilion Brilliant
Waterloo
La Superbe

CRIMSON.

Purple Crown
Cramoisie Fidele
Couleur Cramoisie
Feu de l'Empire
Royal Queen
Sunbeam
Belle Alliance

WHITE.

Queen Victoria
Reine Blanche
La Latiere
Luna
Pottebakker White
Grand Duc White
Jagt Van Delft
Nonsuit
White Eagle
Alida
White Duc Van Thol

WHITE BARRED OR FLAKED WITH ROSE.

Standard Royal
Pasquier

EARLY-FLOWERING BEDDING TULIPS.

YELLOW.

Canary Bird
Yellow Duc Van Thol
Golden Prince
Yellow Pottebakker

YELLOW FLAKED WITH CRIMSON.

Hoff Van Brabant
Standard Gold
Grand Duc Red
Princesse Autrichienne

RICH BRONZE-RED OR CRIMSON.

Ardemis
Brutus
Couleur de Feu
La Majestueuse
Rouge Formidable

RICH VIOLET CRIMSON.

Duc de Luxemburg
Typhon

ORANGE-TINTED SCARLET.

Couleur de Cardinale
Cardinal Hoed

RICH BRONZE CRIMSON WITH NARROW ORANGE BELT.

Duc de Brunswick
Duc Major
Duc d'Orléans
Yellow and Red of Leyden.

BRIGHT BRONZE CRIMSON WITH NARROW YELLOW MARGIN.

Commandant
Drusvilla
Duc Voorhelm
Duchesse de Parma
Paragon Constant

RICH BRONZE CRIMSON WITH BROAD ORANGE BELT.

Archduc d'Autriche
Duc de Chartres
Duc de Guise
Duc d'Orange

RICH VIOLET-PUCE WITH LILAC-WHITE BELT.

Archus
Caiman
Duc borde Blanc
La Remarquable
Lac Bontlof
Lac Obscur
Lac Van Ryn Striped
Lac Dorée

RICH VIOLET PURPLE.

La Plaisante

PURPLE.

Molière

BUFF YELLOW.

Thomas Moore

SALMON-TINTED ROSE.

Cramoisie Royale
Monument
Proserpine

WHITE FEATHERED WITH ROSE CERISE.

Cerise Incomparable
Cerise de France
Abbesse de St. Denis
Koning Assingaris

WHITE TINTED WITH PURE ROSE.

Rose de Provence
Rose Royale
Belle Rose
Cottage Maid
White and Red Bordered

WHITE FLUSHED CARMINE.

Leander
Rose Aplatis
Rose Grisdelin

BRIGHT CERISE ROSE WHITE OUTWARDLY.

Cerise Non Rectifié
Couleur de Ponceau
General Scheudler
Sultana
Rouge Eblouissante

WHITE BARRED OR FLAKED WITH CERISE CRIMSON.

Alide Marie
Bride of Haarlem
Grootmeester White
Grootmeester Van Maltha

CREAM-WHITE FEATHERED WITH ROSE.

Aimable Rosette
Cerise Blanche
Flammula

CREAM-WHITE WITH VIOLET-ROSE CENTRE BAR.

Wapen Van Leyden

WHITE WITH ROSY-PURPLE BAR.

Admiral Floridans
Fabviola
Florida
Intendant
Superintendant
Lauriston

The dwarf self-coloured kinds are the first to display their beautiful flower-cups. The average growth of these is from four to six or eight inches in height ; and they comprise brilliant scarlet, crimson, white, and yellow, each colour distinct, and thus adapted for forming exquisite groups, belts, or beds of any design. This dwarf series is also represented by varieties with parti-coloured flowers : pure white ground, barred or feathered with rich cerise-rose, or violet-crimson ; or rich golden yellow, feathered or banded with bronze-red, or crimson. The whole of the above-mentioned rich and varied colours, are reproduced in varieties of taller growth, from nine to twelve inches in height, these affording in succession to the dwarfer sorts, a continuation of brilliant hues, adapted to more massive groups, and for producing distant effect in gardens of greater extent. It is impossible to describe the effect produced by well-arranged and well-contrasted groups or beds of these gay-flowering bulbs. No other tribe of plants, either of early or late blooming habit, combine so much glowing colour, with the same uniform and neat style of growth.

EARLY-FLOWERING BEDDING TULIPS.

The mode of planting Tulips is too well known to require being here detailed. One cultivator throws off the upper surface soil of the whole bed to its desired depth, and plants the entire extent either in cross rows or lengthwise. A second retains the surface soil to the full height as prepared, and plants crosswise in drills by means of a trowel, a workman being placed on each side of the bed. A third plan is to retain the surface soil to the full height as prepared, and to form cavities by pressing perpendicularly into the soil a dibble of uniform thickness to the required depth of three inches for each bulb. As a general rule, any mode of planting is favourable which leaves the under soil open or porous, but a method which, like that last adverted to, leaves a wall-like cavity of compressed soil around each bulb is prejudicial, the bulb being thus exposed to the surface-moisture of our variable English climate. The two first-named plans, with after-covering, offer the most judicious methods of planting that can be followed, as they admit of a stratum of dry river sand being placed beneath the bulb, the bulb being slightly pressed into it, and also of a thicker stratum of the same material being placed over the bulbs, previous to the final covering of soil. Small bulbs or offsets should be planted one month earlier than full-sized ones. The period of planting may be regulated in part by the means afforded of preserving the bulbs. A rule involving the least risk, and dispensing with after-protection by not involving an early winter growth, is to plant soon after Christmas ; by so doing, the danger of the young growth being exposed to the first winter frost is averted.

When the leaf growth is well-developed, it is important in the event of heavy rains or continuous frost, to keep the soil open by occasional stirring, to prevent the injurious effects of surface-moisture ; and it is still more requisite that the soil should be closed around each stem where wind or frost may have produced a cavity.

The beauty of the flowers may be prolonged by shading them from intense sunlight during mid-day hours, the coverings being removable at pleasure, when not required. The more transparent the material employed for shading and covering (if it be waterproof) the better. After the interest of the bloom is past, the seed vessels must be pinched off ; and as soon as the flower-scapes or stems show symptoms of yellowness, the bulbs must be taken up in fine weather and dried thoroughly, either in the open air, or in a dry room, or shallow plant pit. If they are taken up in a partially green state, the stems must dry or shrivel before they are broken off. After remaining for a week in a thoroughly dry place, they are to be removed to a well ventilated store-room.

The hardiness of the Tulip renders it a matter of indifference in what aspect it is grown, though it is desirable, when practicable, to screen the plants from the north, as a partial protection from keen frosty air. Any good light garden loam, with a dry subsoil, and free from clay or irony matter, is suitable for its growth ; though that is the most favourable which embodies a naturally sandy grain. Where the soil is too retentive, and the substratum is unbroken, the original soil should be removed to a depth of two feet, and replaced, or mixed, as may be required, with pulverised yellow loam, incorporated with one-fourth part of old well decomposed stable manure, or leaf mould. The best preparation for new or neglected ground, is to trench the soil in autumn, the requisite amount of manure being dug in and well intermixed near the surface.

Those varieties of early-flowering Tulips, which are specially adapted for forcing in pots, are beautiful objects for the decoration of the conservatory and drawing-room during the winter and early spring months. Good garden soil, consisting of three parts friable sandy-grained loam, and one of decayed manure and cocoa-nut fibre, well mixed, is suitable for them. The single-flowered dwarf varieties admit of five or six bulbs being planted in each five-inch pot. For the first display they should be planted in the middle of October, and for succession groups others should be put in every fortnight or three weeks. When thus planted, place the pots on a dry firm border, or bed of ashes or gravel, and cover them over with six or eight inches of dry old tan or cocoa-nut fibre, as is done with Hyacinths. In the course of a month or six weeks, the incipient roots will be formed, and those first potted may be taken out and neatly surfaced previously to their being placed in a shallow, partially shaded frame, or pit, until the blanched leaf-crowns have acquired their green hue. From thence they may be removed to a warm greenhouse

or forcing-pit, to stimulate them into bloom. As the flowers come to display their respective colours, they may be removed into the conservatory, or drawing-room. In the selection of Tulips for forcing, it may be remembered that the dwarf varieties are the most suitable, besides their being the most interesting for grouping in drawing-room vases, &c. The following are amongst the gayest varieties for pot-culture :—

SINGLE-FLOWERED.

Duc Van Thol: crimson and yellow.
Yellow Duc Van Thol: bright yellow.
Scarlet Duc Van Thol: brilliant.
Vermilion Scarlet: bright scarlet.
Josephine : rich crimson scarlet.
Feu d'Anvers: bright scarlet.
La Superbe: cinnabar scarlet.
Purple Crown: blood crimson.
White Duc Van Thol: clear cream-white.
Queen Victoria: pure white.
Reine Blanche: good white.
Pottebakker White: large pure white.
Silver Standard: white, flaked with rose.
Belle Rose: white, barred with light rose.
Couleur de Ponceau: white, with rose belt.
Rose Tendre: white, with cherry crimson feather.

DOUBLE-FLOWERED.

EARLY.

Tournsol: crimson centre, with gold margin.
Duc Van Thol: red, with yellow margin.
La Candeur: clear white.

LATER.

Gloria Solis: rich crimson with orange-yellow border.
Rex Rubrorum: rich self-scarlet.
Regina Rubrorum: bright red crimson.
Yellow Rose: golden yellow.
Yellow Tournsol: yellow, flushed with red.
Imperator Rubrorum: orange-tinted scarlet.

The majority of the Double-flowered Tulips bloom somewhat later in beds than the single ones, and whilst the first-named varieties in the annexed list are adapted for the earliest display, those which follow are amongst the finest for blooming immediately in succession to the single-flowered sorts. The following include the most select Double varieties of their respective colours :—

RICH CRIMSON AND CRIMSON SCARLET.

Rex Rubrorum.
Regina Rubrorum.
Pæony Rose.
Imperator Rubrorum.

RICH RED CENTRE, WITH ORANGE YELLOW MARGIN.

Tournsol.
Gloria Solis.
Extremity d'Or.
Helianthus.

VIOLET CRIMSON CENTRE, WITH CREAMY-WHITE BELT.

Couronne Imperiale.

VIOLET-PURPLE CENTRE, WITH BROAD LILAC BELT.

Blanc borde pourpre.
Blanc borde rouge.

YELLOW, WITH RICH BRONZE FLAKES.

Pæony Gold.
Arlequin.
Admiral Kingsbergen.
Gondeau Beker.

YELLOW.

Yellow Rose.
Yellow Tournsol.

WHITE.

La Candeur

WHITE CENTRE, WITH RICH VIOLET CRIMSON TIPS.

Couronne des Roses

WHITE, WITH VIOLET-PURPLE OR CRIMSON FLAKES.

Epaulet d'Argent
Pourpre Agréable

There are besides, several highly beautiful and effective varieties amongst the double sorts, which, in consequence of their still later period of blooming, are specially adapted for the arboretum and pleasure-ground borders, or for large beds, to be followed by prepared bedding-out summer plants. The finest of these are :—

Mariage de ma Fille: white, striped and feathered with bright rose.
Belle Alliance.
Conqueror.
Overwinnaar: white, with violet crimson feathered margin.
Lord Wellington: rich purple lilac.
Molière: good self purple.
La Candeur: double white.
Pæony Gold: yellow, with crimson feathered margin.
Pæony Rose: rich dwarf crimson.

Amongst the finest of the later-flowered single kinds, also specially adapted for late blooming groups in the flower-garden, are the beautiful garden varieties of *T. Gesneriana,* of a brilliant lake scarlet; and of *T. Gesneriana stellata,* lake-scarlet with a starry base.

METHONICA.

Mrs Withers Delt. Printed by C. Chabot.

1. Grandiflora. 2. Virescens – Var. Plants

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has similarly a scandent habit. Collectors speak of it as being exceedingly variable in character, according to the situation of growth, or its exposure to, or shelter from, sunlight. It principally differs from its congeners in the colour of its remarkably large blossoms, and in its robust growth, attaining to eight or ten feet in length during one season. The flower-buds, previous to their expansion, are three inches in length; they open erect and straight, but on the second day the divisions assume a horizontal position, the long narrow lanceolate partially waved segments expanding from six to eight inches in diameter, and finally they become reflexed. Being of a rich golden yellow colour, they are very ornamental and conspicuous during the summer months. Its treatment should be similar to that described for *M. superba.* Though less favourable to fertility of bloom, it is by far the most suitable species for training up hothouse rafters, or on high trellis-work where well exposed to light.

Our upper figure represents M. VIRESCENS, *var.* PLANTII. The beautiful *M. virescens* was first introduced from Eastern Africa in 1823, and subsequently from Mozambique—the two importations proving to be of the same species. It was from these that the figure given in the *Botanical Magazine* (t. 2539) was derived; but the very defective representation proves, either that the plant was of an inferior form, or, what is more probable, that its culture was then very imperfectly understood. More recent importations, which have been received from Natal, Abyssinia, and Madagascar, have afforded the variety we now figure, which is variously known in gardens as *M. Plantii* and *M. Leopoldii.* In its cirrhiferous or tendril-bearing form it bears the above-mentioned names; but in the absence of the tendrils it seems to be the *M. simplex* of botanists, for it is supposed that this latter, with reputed blue flowers, said to have been found by Adanson, is nothing more than the present plant.

It has hitherto been regarded as a hothouse plant, but it matures its flowers more vigorously in a ventilated warm summer greenhouse, in which it forms a neat trailer, of about two feet and a half in height, differing from *M. superba* by its more compact and less scandent growth; while the glossy stems have shorter internodes or joints, and the leaves are more densely set, of an oblong-lanceolate form, ending in a short cirrhus or tendril, and somewhat twisted from the base. The flowers are axillary, the bud of an oval outline, and the petals broad oblong-spathulate. The claw and lower half of the petals are bright yellow, with even margins, while the upper portion is partially waved and of a bright orange-red colour, the segments being reflexed, and their tips still more recurved towards the stalk of the flower, which thus often takes an almost globular form, not unlike a Scarlet Martagon or Chalcedon Lily. During the midsummer months these remarkable climbers add a very elegant and unusual feature to a select collection of greenhouse plants.

To obtain from them a desirable amount of bloom, the tubers should be preserved in a dry and warm place in the pots of last year's growth, under the stage or platform of a greenhouse, from autumn until April, May, or June, as required for succession: at which period, either renew the soil or repot them, using a rich plain compost of loam, leaf-mould, &c., as recommended for other species. Give full exposure to light, with distant yet free waterings until the growth appears. The genial moist temperature of a warm greenhouse, closed as required in cool weather, is sufficient for the growth of this beautiful plant. On the decline of growth, the pots ought to be exposed to sunlight in a warm house for a few weeks, to mature the tubers, previously to their being stored away.

Lets Dell.

Printed by C Chabot

Agapanthus umbellatus — var. Albiflorus

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PLATE LXXIX.

AGAPANTHUS UMBELLATUS ALBIFLORUS.

THE Blue African Lily (*Agapanthus umbellatus*) is well known as having for a considerable period maintained its position in our collections, whilst numerous other plants introduced with a high reputation have failed to do so, and are forgotten. Apart from its bloom, indeed, though of neat habit, it possesses no specially attractive features: its value consists in its large and ornamental clusters of rich deep blue flowers, produced at a season when decorative plants are not plentiful, and in its comparatively easy culture.

It has been injudiciously remarked that the African Lily requires too much root space to adapt it for moderately sized gardens—a remark equally applicable to a thousand other beautiful plants, and only correct where its largest style of growth and beauty is desired. A proportionate bloom may, by proper treatment, be obtained from all medium-sized plants, and therefore it is adapted for any garden where a slight protection can be given during the winter months. In mild seasons it is sufficiently hardy to endure continued exposure if unwatered, and plunged or planted close to the front of a wall in a dry border, where, in the event of frosty weather, it will only require to be covered with a thick stratum of dry fern leaves, or coarse parched leaf mould. It is equally well preserved in a half dried state, in a deep cool pit, or stored beneath the stage or platform of a greenhouse, from the period when its autumnal growth declines, until spring.

Where this ornamental plant is required for large summer-flowering groups, either for plunging in beds, or as portable specimens, the store plants may be removed at any time from February until April, from their winter position to one where they will enjoy full light. After a slight stimulus they may be re-potted, and encouraged to grow, either within a cool plant-pit or greenhouse, until June or July, when they may be removed to a sheltered border in the open air preparatory to summer planting.

The African Lily being a strong rooted plant of gross feeding habit, luxuriates in rich loamy soils, and may be grown to its highest perfection in large pots or medium-sized boxes. When liberally potted in spring, it should not be shifted to larger pots until after the formation of the flower-stems (even if then required), but encouraged to the production of bloom by an abundant supply of water during the midsummer months, with an occasional dose of liquid-manure. From the period last named all plants intended for blooming in pots of six inches diameter or upwards, should be placed in saucers, and from them supplied with water once or twice each week, but in the event of heavy rain, the dishes should for the time be dispensed with. Deficiency of bloom is attributable to a lack of moisture, or an undue removal to larger pots. Well-flowered specimens form fine objects for large conservatories, and are admirably adapted for terrace decorations, artistic vases, baskets, &c. The large heads of rich blue blossoms during

the late summer months, yield a fine contrast to the opposite and warmer tints which predominate at that period in the flower-garden.

Amongst the various forms of this ornamental species to be met with, there are occasionally to be found varieties differing in the shades of their colour; but by far the most distinct and remarkable is the one now illustrated, A. UMBELLATUS *var.* ALBIFLORUS. Its origin in gardens is unknown, and judging from its absence in trade lists generally, it must be regarded as a rare and highly interesting plant. It differs from that form of the species previously described, by being considerably smaller in all its parts, and strictly deciduous, the parent type being sub-evergreen. In general habit and appearance it comes nearest to the elegant silver-striped variety hereinafter described. It forms a stemless half-hardy perennial herbaceous plant, adapted for culture within a cold pit or greenhouse, where protected from frost. It is free and vigorous in growth, forming strong, fleshy, permanent root-stocks, terminating in thick succulent fibres, of annual or biennial duration, according to the period of rest from growth. The leaves grow from the prominent oval knob-like crowns which terminate the summit of the root-stocks just adverted to; they are arranged in opposite distichous rows, and are of a linear strap-shaped form, from twelve to sixteen inches in length, and nearly one inch in width, bluntly pointed, and of a light green colour. The flower-scape is from one and a half to two feet in length, slender, but remarkably rigid and firm, terminating in an umbellate cluster of from fifteen to thirty pure white funnel-shaped blossoms, each two inches in length, and expanding to upwards of one inch across, into six equal lanceolate lobes. Its purity of colour renders it a very distinct feature in the greenhouse, or cool conservatory, during the summer months. When the leaf-growth shows a natural tendency to decline in autumn, it should be allowed a cessation from growth, from the late autumn months until spring, when it should be re-potted or divided as required. With the other allied kinds it thrives in good loam, enriched with decayed leaf-mould, and during its dormant condition requires but occasional watering until early spring, when it may again be gradually stimulated to growth with full exposure to light. To obtain extra vigour of growth it may be planted in the flower borders, and re-potted in autumn.

A. UMBELLATUS MINOR.—With a less robust habit than the foregoing, it is also the most erect in its leaf-growth, and is readily distinguished by the dark violet or purple base of its leaves. These leaves show a dark and glossy green hue, and are prominently channelled. The flower-scape is nearly two feet in height, having a many flowered spreading umbel of elegant pure light porcelain blue blossoms, one and a quarter inch in width, expanding almost horizontally, each lobe being marked with a darker central bar or streak.

A. UMBELLATUS MINOR VARIEGATUS.—A neat dwarf greenhouse perennial herbaceous plant of sub-evergreen habit, free in growth, and reaching to about a foot in height. The leaves are linear strap-shaped, nine to twelve inches in length, diverging from the crown or centre in a fan-like manner, of a pale green under tint, the surface being closely marked with silvery streaks, and margined with a white border. It forms an elegant plant for conservatory decoration throughout the summer, or for a picturesque group in the flower-garden.

A. UMBELLATUS MAXIMUS.—The growth of this variety is more erect than that of the original species, and the flowers are of a paler hue. The leaves are more flatly expanded, and when mature assume a more divergent or horizontal outline. The flower-scape is bluntly compressed, reaching from two to three feet in height, and is of a light green tint at the lower half, and speckled with brown towards the upper part. The blossoms form a many-flowered umbel of flattish hemispherical outline, the peduncles or flower-stalks being somewhat unequal in length, and of a deep brown tint. The individual blossoms are less expanded than in the allied kinds, but of a richer azure blue, with a darker streak through the centre of each lobe.

J. Andrews, Delt.

DIPLADENIA HOUTTEANA.

Printed by C. Chase

ILLUSTRATED BOUQUET.

Published by E. C. Henderson and Son.

PLATE LXXX.

DIPLADENIA HOUTTEANA.

THIS beautiful plant, it will at once be seen, bears a *primâ facie* resemblance to the well-known *D. crassinoda*, which has long been appreciated as one of our finest hothouse-climbers with rose-coloured flowers. The present is distinguished from that species, by the surface of its stems and leaves being covered with short, dense, velvety pubescence. The matured leaves moreover, differ in being of a linear-oblong outline, with an abrupt acuminate point; but the most distinctive feature occurs in the flowers, which are larger with the limb more prominently lobed. The flowers are produced from the leaf-axils in short racemes of from two to three blossoms each, borne on a short crimson-tinted stalk. The corolla is funnel-shaped constricted at the base, and expanding into a large five-lobed limb or border, three to four inches in width, the lobes being acutely ovate, and flushed at the base with rich crimson, traced with darker lines, thus showing a beautiful contrast with the golden-tinted throat; while the higher colour around the throat merges outwardly in the lobes into the richest shades of rose, and appears uniformly marked with pale white spots.

Our subject forms a remarkably neat and slender hothouse shrub of twining habit, and is specially adapted for pot culture in collections of moderate extent, whilst its tendency to flower freely on the matured growth, renders it a most desirable plant for competition groups, and for conservatory decoration.

To induce luxuriant growth, the plant should be potted in equal portions of well-broken turfy loam and heath mould, mixed with small portions of charcoal or sand-stone of about the size of walnuts; the utmost care being taken that the drainage is efficient.

During the early spring months young plants may be encouraged to growth in a moist stove temperature of 75° to 80°, with a free exposure to light by day, while a correspondingly lower temperature should be provided by night. A second growth may be most effectually obtained, where the plants can be partially plunged in a warm tan bed, or placed upon a hot-water tank, with a moist atmosphere. This second or later summer growth being obtained, the plants should be gradually removed to a cooler and drier position in the stove until spring.

From February until March, in the second year, the plants which are intended for exhibition purposes, may again be excited by a higher temperature, and should be shifted into larger pots of nine to twelve, or more inches in diameter, and carried forward to mature growth by a warm root temperature, on a tank or hot-bed with due exposure to light, the advancing growth being encouraged to make lateral or side branches by pinching off the growing extremities at each successive third or fifth joint, or leaf-bud. Where house-room cannot be given, a deep wide pit, with the requisite depth of tan, or a tank to supply bottom heat, may be employed as a good substitute for the stove, if judicious attention is paid to ventilation, moisture, &c.

After each season's bloom and the after-growth is obtained, in the case of large plants, they should be brought into a state of partial rest, by placing them in a cooler stove or intermediate house, with less frequent waterings, thus gradually encouraging a half deciduous state, under a full exposure to light and sun. In this way they will be enabled to elaborate the nutritive elements appropriated during the summer's growth, which are essential to their blooming in the ensuing year. The following allied plants may be mentioned in this place :—

D. CRASSINODA.—In its general features of growth this plant is similar to *D. Houtteana*, but it differs in the form and almost glossy smoothness of its leaves, as well as in the rounder lobes of the less richly-coloured flowers. It is equally neat and slender in its growth, and is well adapted for training over designs of trellis-work when under pot-culture. When well managed, its numerous richly-tinted, rose-coloured, salver-shaped blossoms, three inches or upwards in diameter, render it a very beautiful and attractive feature in exhibition groups, amongst which, hitherto it has ranked without a rival. The treatment recommended for the subject of our Plate is strictly applicable to this.

D. SPLENDENS.—This is a noble species, distinguished from the preceding by its more robust growth, thus forming a stronger plant of twining habit, and having a sub-deciduous character in winter. When successfully grown it forms a sparingly-branched plant of very exuberant growth. It consequently requires special attention during summer to obtain a development of side branches, from which blossoms are most readily produced in the ensuing season. Its ample foliage well comports with its remarkably large flowers. The leaves attain eight or nine inches in length, and four to six inches in breadth, and are acuminately oblong in form, rather waved on the margin, and wrinkled on the upper surface. The flowers, which are produced from the axils of the leaves, in racemes of from four to six blossoms each, have a funnel-shaped tube, the limb of five rounded converging lobes forming a border from four to five inches in width ; they open of a blush-white, and at their maturity are exquisitely suffused with rose or pink. A well-flowered specimen forms a grand feature, and attests superior culture when thus produced. A soil of rather stronger texture is requisite for this species, though in other respects a similar treatment should be given. Being originally found at a very considerable elevation on the Organ Mountains, in Brazil, a partial cessation of growth during the midwinter months, in the low summer temperature of an intermediate house, is favourable to that maturity of its buds which is essential to bloom.

D. ATROPURPUREA.—This is one of the most distinct of the species, and forms a neat, slender, sparingly-branched evergreen twining shrub, with comparatively small elliptic-ovate leaves, and slender twin-flowered peduncles. The individual blossoms are tubular at the base for nearly two inches in length, above which they are inflated into a half egg-shaped form, from which expands the horizontal limb or border of five ovate lobes ; they measure nearly two inches across. Externally, the flower-tube is green, whilst the upper part is of a dark coppery brown, marked with distant pale longitudinal lines, the rich dark chocolate crimson limb being relieved by contrast with the bright buff tint of the throat.

The affinity between *Dipladenia* and *Echites*, both as to appearance and treatment, is so close, that we may here introduce the following desirable species of the latter genus.

ECHITES SUBERECTA.—This is a free vigorous-growing hothouse climbing shrub, recognised by its glossy obtusely-oblong leaves, having a slightly hairy surface, and producing its bright yellow salver-shaped blossoms, during the midsummer months. Its limited extent of growth, its neat habit, and its effectiveness when successfully bloomed, make it desirable as a companion to the allied plants already noticed. Similar treatment to that previously described is suitable to it. As a yellow-flowered stove climber it is one of the most desirable in cultivation.

AQUILEGIA.

1. Glandulosa. 2. Skinneri. 3. Hybrid varieties.

Mrs Withers, Delt.

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ELLIOTT & MORRISH,
lithographers, 32, Newgate Street,
E.C.

PLATE LXXXI.

NEW AQUILEGIAS.

THE Columbines rank amongst the most distinct and interesting of our out-door garden flowers. Indeed, the numerous varieties of *A. vulgaris*, one of the commonest species, which has yielded many semi-double and double forms, are associated with our earliest recollections of flowers; but since the introduction of more novel species many of these commoner kinds have disappeared.

The following notes are descriptive of the most beautiful and distinct species of garden Columbines, whilst our plate illustrates two of the most distinct of them (figs. 1 and 2), together with a group of seedling varieties (fig. 3) raised by the Rev. A. Rawson, of Bromley Common, Kent, a gentleman whose unremitting zeal, and love of floriculture, has been rewarded by the production of many beautiful novelties. We learn from him that these varieties, which are very handsome, much brighter than our figures show, were produced between *A. Skinneri* and *A. fragrans*.

A. GLANDULOSA (fig. 1). This is a perennial of erect growth, one to two feet in height, the bracts and calyces margined with gland-tipt hairs. The leaves are glaucous-green, triternate or triply divided into deeply cleft divisions or lobes, which are wedge-shaped at the base. The flowers are large, nodding, and conspicuously beautiful, from two to three inches across; the spreading sepals, broadly ovate, of a rich blue, marked with deeper veins; the five alternate petals erect, expanded at the upper part, which is white, blue below, and elongating into a spur, which curves inwards at the extremity. This exceedingly fine species differs slightly in form and colour when raised from seed, but is nevertheless more constant when so produced than many others. A deep cool rich soil appears best adapted to its summer growth, and in winter it needs protection from stagnant or surface moisture.

A. SKINNERI (fig. 2). This is a highly ornamental hardy perennial species from Guatemala, attaining from two to three feet in height, having purplish-tinted stems, and dark green triternate deeply three-lobed leaves, with blunt marginal segments. The flowers are large and effective; the sepals green, ovately lanceolate, projecting; the petals yellowish-green with a short rounded limb, elongating backwards into lanceolate tube-like spurs, which are club-shaped at the extremity, and of a bright orange-scarlet colour. The green styles tipped with golden-yellow anthers, form an attractive feature in the flowers.

Besides the species and varieties represented by the accompanying figures, the following sorts of Columbines may be strongly recommended for general cultivation :—

A. ALPINA. A rare and beautiful species. In its true character it is strictly perennial, erect, from one to two feet in height, smooth or slightly pubescent; the leaves rather small, glaucous green. The large and conspicuous blossoms are of a rich variable azure blue, and slightly drooping. The scarcity of this fine plant has led to inferior varieties being substituted for it.

A. BLANDA. This very interesting hybrid variety was raised between *A. vulgaris* and *A. leptoceras*. It is an ornamental summer-flowering plant of vigorous growth, from two to three feet in height, having triternate leaves with broad wedge-shaped divisions. The large pendent fragrant blossoms are borne in loose erect racemes. The sepals are large and spreading, ovately heart-

shaped, and of an elegant bluish-lilac tint, with darker veins or lines. The petals are large, white or cream-coloured, with a pale violet-coloured spur.

A. JUCUNDA. A handsome hardy perennial species from the mountains of Siberia. It grows from one and a half to two feet in height, and appears intermediate between *A. glandulosa* and *A. alpina*, differing from the former in its strictly ovate tapering sepals, and from *A. alpina* in its broad roundly ovate petals—the petals being truncate in the last-named species, and acutely pointed in *A. glandulosa*. The large solitary blossoms of the present species are borne on erect firm peduncles, and vary from a bright azure, to a dark blue, the former predominating; the large white-bordered converging petals form a fine contrast with the spreading sepals. This very elegant plant is also distinguishable from *A. glandulosa* by its generally dwarfer habit, and very glaucous triternate leaves of roundish outline, with blunt cuneate notched margins; its large conspicuous solitary flowers, also separate it from the twin or three-flowered racemes of those species with which it has been compared.

A. GLAUCA. This is an early summer-flowering hardy species, from one to two feet in height, of slender growth with reddish-tinted stems, and neat small glaucous-green leaves, the wedge-shaped divisions of which have acute marginal segments; the large pale straw-coloured blossoms are delightfully fragrant, and render this a most desirable plant for select collections.

A. FORMOSA (*A. arctica*). A neat early summer-flowering species, of rather slender growth, with smooth green stems, small unequally three-lobed leaves, and medium-sized drooping flowers, borne in two or three-flowered racemes. The sepals are ovately acuminate, spreading, clear orange-red or scarlet; the petals comparatively large, truncately oblong, and slightly convex, of a bright citron-yellow colour; the spurs, three quarters of an inch in length, rich orange-scarlet, &c., and the styles and anthers golden-yellow.

A. FRAGRANS. A valuable and rather rare species from the north of India. It approaches most nearly to *A. glauca*, but is readily distinguished from that plant by its rich green leaves, and also by its slightly incurved instead of erect spurs. Its large creamy-white blossoms yield a grateful odour.

A. HARRISONI. A hardy summer-flowering garden hybrid, of neat growth, about one and a half foot in height, with terminal open panicles of slightly drooping double white flowers, forming a desirable contrast to the darker flowered species.

The various kinds of Columbine thrive well in ordinary garden soil having a dry under stratum. A cool deep border with the condition just named, is the most favourable for a vigorous summer's growth and bloom; but to retain the plants it is essential to protect the leaf-crowns from undue surface moisture in winter. Nearly all the species succeed best by being planted in the flower-border or beds during summer; but where the soil is too retentive of moisture in unfavourable seasons, the smaller and scarcer kinds should be taken up in the autumn, and potted, and preserved in frames, or pits, where they may be protected from severe frosts until the ensuing spring. The plants may be divided when their vigour admits of it, but this operation should be performed in summer, or delayed until the early spring months. A mixture of three parts of well pulverized turfy sandy-grained loam, with one of similarly-prepared leaf-mould, and an additional sixth part of broken charcoal, will be adapted for the winter growth. As to their treatment while in frames, they should have a modified ventilation day and night during mild weather, watering freely but seldom in such intervals—once or twice each week or fortnight as required, but withholding water on the approach or during the prevalence of severe frost. Towards spring, water must be more freely given, and they should then have full exposure in genial weather. Early in April the plants may be removed to a north border, or cradle-bed, and merely protected against spring-frosts preparatory to being planted out.

When multiplied by seed, it is advisable either to sow immediately on the seed being matured, or to defer the operation until the ensuing January or February. In adopting the former plan, the seed will germinate readily in a frame or pit, with partial shade from intense sunlight; but at the latter period it should be placed in the forcing house, and when the seedlings admit, pricked off into stores of six to twelve in each pot, which, when established, may be again transplanted singly into smaller pots, and by March or April may be removed to cold pits or frames previous to being planted out, or they may be further potted for bloom.

When planted out in the early summer months, seedlings will bloom the first season. Cultivators are generally aware that seminal varieties are extremely liable to sport from the parent stock into diversified tints. To avoid this in some degree, those who wish to increase their stock of distinct or reputed species should cultivate the respective kinds at some distance apart; and it is desirable, that the progeny of all cross-bred kinds should be bloomed to test their identity before they are allowed to occupy prominent positions. After the flowering season, the most valuable proved varieties, unless of vigorous growth, will be best preserved in pots, as previously described; the surplus stock being used for the decoration of the ordinary shrubbery borders.

RHODODENDRON COUNTESS OF HADDINGTON.

Miss Sowerby. Delt.

ILLUSTRATED BOUQUET.

Published by E. & Henderson and Son.

ELLIOTT & MORRISH,
Lithographers, 32, Newgate Street.

PLATE LXXXII.

RHODODENDRON COUNTESS OF HADDINGTON.

THE numerous fine hybrid varieties of *Rhododendron* which are annually produced in English as well as in foreign gardens, make it necessary that a special caution should be given against the introduction to general cultivation of any which do not possess very superior qualities. The variety now illustrated is considered one of the finest yet produced by cross fertilization, and is worth a place in the most select collections of early spring-flowering kinds. It was originated by Mr. Lees, gardener to the Countess of Haddington, at Tynningham Park, Preston Kirk, near Edinburgh; and the entire stock was disposed of to Mr. Parker, of the Exotic Nursery, Tooting, Surrey.

The variety is intermediate between *R. Dalhousiæ* and *R. ciliatum*, which were its two parents, and it combines the large and beautiful fragrant flowers of the former, with the neat hardy evergreen habit and blush-tinted blossoms of the latter. In evidence of its great merit and beauty, it was awarded a first-class honorary certificate, when first exhibited at the Edinburgh Horticultural Exhibition in March, 1861; and since that period it has received a similar award from the Floral Committee of the Royal Horticultural Society of London. It also gained a special prize at the Crystal Palace exhibition, in May, 1863, as the best specimen of an extremely rare and beautiful plant.

In its habit of growth it is both compact and vigorous, and, moreover, well furnished with dark-green, elliptic-lanceolate leaves, ciliated or fringed on their margin. It bears also numerous large, long-tubed, well-expanded funnel-shaped blossoms, nearly three inches in width, of a delicate white, flushed with rosy-pink, of stout substance, and diffusing a grateful odour. The early flowering habit of this hybrid renders it a very valuable plant for spring decoration in conservatories, entrance halls, or vestibules, especially when contrasted with the darker coloured rose and crimson-flowered varieties. Its peculiarly neat growth adapts it for the most select and limited collections.

The cultural management of this Rhododendron is similar to that of other cool greenhouse kinds. When the beauty and interest of the blossoms have passed, the remaining portions of the flower-heads should be cut off, and, if needful, the plant should be repotted, and placed in a warm, genial temperature, with full exposure to light for a few weeks, until the current growth becomes firm. After this the plant may be gradually inured to a cooler house or pit, or may be placed with greenhouse shrubs upon an open-air south or east border during the later months of summer, until returned to the cool conservatory or plant pit for the winter.

When required for early spring bloom, a genially warm and moist atmosphere is sufficient for stimulating the slow expansion of the flower buds, only raising the temperature with the more vigorous action of the root growth. The plant should be syringed daily, in the early morning or evening hours, to encourage a favorable condition for growth. As the bloom advances to maturity, and previous to its expansion, moisture by syringing should be withheld, a drier atmosphere being favorable to retaining its beauty.

RHODODENDRON COUNTESS OF HADDINGTON.

The numerous fine hybrid varieties of *Rhododendron* which have proved hardy, among which that now portrayed is one of the most valuable, suggest a few remarks respecting certain other plants, whose attractive features render them adapted for adding to the interest and beauty of Rhododendron groups in the open ground, during the summer and autumn months, when the beauty of these fine spring-flowering shrubs has passed away. The following plants are a few of those which are most suitable for summer culture in peat soil :—

Alströmeria chilensis. An ornamental, hardy, tuberous-rooted, perennial, herbaceous plant, of erect growth, from two to three feet in height, with glaucous green stems and leaves; the flowers, which are borne in terminal panicled umbels, are of a compact but unequally-lobed outline, and greatly diversified in colour, in some orange-red, yellow, pink, rose, or carmine-red, in others lined with the same rich tints upon a pale-white or blush-coloured ground.

Anemone vitifolia, and its variety Honorine Jobert, are handsome vigorous perennial herbaceous plants, the former from two to four the latter from one and a half to two feet in height, each producing numerous snow-white blossoms throughout the late summer and autumn months, the latter being a very marked improvement.

Arundo Donax. A tall and stately species of reed-grass, growing from four to six feet or more in height, having robust, erect stems, with long, broadish, tapering leaves, gracefully decurved.

Arundo Donax variegata. This very beautiful reed, a variety of the foregoing, forms a robust, vigorous-growing plant of majestic habit, with long, broad, elegantly decurved leaves, from one and a half to two feet in length, and two to three inches in width, boldly marked with broad silver stripes and margins throughout their length.

Asclepias tuberosus. A neat summer-flowering perennial herbaceous plant, from one to two feet in height, having reddish-tinted, hairy-surfaced stems, with oblong lanceolate leaves, and terminal clusters of rich orange and orange-red blossoms.

Bambusa Metake. This interesting species of Bamboo represents several others, which are half-hardy perennials, growing from three to ten feet in height, and forming elegant masses of erect, half-shrubby habit, and having polished culms or stems, and gracefully diverging, lanceolate, grassy leaves. The kind now named, together with *Arundinaria falcata,* which is closely allied to it in character and growth, have been found sufficiently hardy to bear our winters when planted in sheltered situations and well exposed to light. They assume a very beautiful conical or pyramidal outline of growth, upwards of ten feet in height. In such positions the growth is generally preserved without injury, but in severe seasons the entire growth may be cut back to the ground, and protected in the same manner as *Fuchsia* and *Erythrina* until the spring months. When individual specimens are cultivated in pots, the plants may be started into growth in a conservatory, or a deep pit, and planted out singly in June, or so as to form effective groups where, during the summer and autumn months, they are exceedingly effective and graceful. *Bambusa nigra,* with chocolate-coloured stems, is remarkably distinct.

Bouvardia triphylla, with its variety *angustifolia,* and the new hybrid varieties, *B. Hogarth, Oriana,* and *Laura,* as well as *B. leiantha, leiantha grandis, leiantha splendida,* and *longiflora,* are well adapted for summer growth in borders of sandy peat soil. The numerous trusses of trumpet-shaped blossoms, varying from pure white to rich salmon and bright scarlet, are very effective through the summer and autumn months.

Schizostylis coccinea. A very beautiful, half-hardy, tuberous-rooted plant, of growth and habit similarly free and vigorous to that of *Tritonia* (or *Crocosmia*) *aurea.* It has erect, sword-shaped leaves, and spikes of compact crocus-like blossoms, each nearly two inches in diameter, varying in colour from deep rosy crimson to vivid scarlet. After its blooming period, in the open ground, it should be repotted in October, and placed in the conservatory, where it will continue to yield a succession of its richly-coloured flowers during the winter months.

Miss Sowerby Delt:

VARIEGATED PELARGONIUMS.

1. Lucy Grieve. 2. Rosette.

ILLUSTRATED BOUQUET.

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PLATE LXXXIII.

NEW VARIEGATED PELARGONIUMS.

THE varieties of Pelargonium now illustrated—namely, LUCY GRIEVE (fig. 1) and ROSETTE (fig. 2), of which descriptions will presently be given,—are offered as examples of the improvement which is being effected in one of the most beautiful tribes of plants for garden decoration. In Plate LII we gave, in the Cloth of Gold, a fine specimen of the section with plain gold-margined variegation. The present shows the exquisite combination of colour which has been wrought out in another direction by skilful cross fertilization.

The beautiful variety *Lucy Grieve*, which we now figure, was raised by Mr. Grieve, of Culford Hall Gardens, near Bury St. Edmunds, who was also the fortunate originator of Mrs. Pollock and other beautiful kinds in the silver- and gold-edged classes.

The introduction of *P. zonale* is stated to have taken place in 1710, from which period may be dated the cultivation of those species and varieties through which our present improved races have been obtained. For a very considerable period the original types of all the popular kinds in present cultivation were confined to the gardens of plant collectors, or to botanical collections, the cultivators of which seem to have been unacquainted with the certain results to be obtained by hybridizing; and it was not until within the last twenty years that any striking improvements have been produced with the species included in that section to which the following remarks refer. In the absence of certain data respecting the sources from whence many of the first species were derived, it may be interesting to amateur cultivators if we refer to several of the first reputed kinds, to the higher cultivation and hybrid alliance of which may be traced the origin of the varieties now so highly valued in our gardens.

The present beautiful forms of the Nosegay section, represented by Stella, Ossian, Cybister, and Nosegay Queen, derive their origin from *P. Fothergillii* of Sweet, in alliance with the *P. crenatum* of Andrews. The former was raised by Dr. Fothergill in 1780, the original plants being marked by the same freedom of growth, and comparatively large flower-trusses, which are seen in the improved varieties. To *P. Bentinckianum* of Sweet, which was well known by its local names of Cape Scarlet and Bath Scarlet, and to *P. fulgens* of Sweet, better known as Basilisk, may be traced many of the present dwarf-growing varieties, having thin or medium-sized trusses of brilliant scarlet blossoms, with a white centre, as found in Wellington Hero, Adonis, Sunlight, Indispensable, Magnet, &c. In *P. glabrifolium* of Sweet may be recognised the slender-branching habit and glabrous stems of the well-known Brilliant, and its allied forms. The varieties of exuberant growing Scarlets, distinguished also by their large compact hemispherical trusses, suited to conservatory-wall decoration and pillar growth, may be traced back to *P. inquinans* of Andrews, and probably also in some degree to the *P. crenatum mollifoliatum* of Andrews. The type of the present elegant rose-coloured bedding varieties is the *P. cerinum* of Sweet, well known in gardens for a considerable period as Lucia Rosea, and which has now given rise to the finer forms known as Princess Royal, Alexandra, Christine,

Helen Lindsay, &c. To many of the same varieties we are still further indebted for the higher attractions afforded by the silver or golden-leaved forms of variegation.

The first instances of variegation in the Zonal section of *Pelargonium* occurred in the form of casual sports from the green-leaved plants. The form in which variegation appears is attributable to some constitutional or occult tendency in the plant. The proximate cause of such deviations varies with the local treatment or exposure, and, as a general rule, operates through an impeded or irregular action of the agencies essential to growth, thereby producing a diversified effect upon their organs, in some instances causing a defective proportion of their parts, in others an exuberant but unequal development. In hardy species many instances of variegation are known to arise from exposure to cold soils; and, in the case of plants from tropical or temperate climates, a change in the chlorophyll, or colouring matter of leaves, often results from the want of a proper temperature and moisture, conditions which result in retarding those secretions which are requisite to a natural and mature growth.

Whilst it is admitted that many apparently casual instances of variegation originate or are contemporaneous with a deterioration of growth in plants, arising from an unequal or excessive action of light, heat, or moisture upon their organs for an indefinite period, the subsequent vigour of many variegated varieties points to an unimpaired constitutional vitality, whilst subject to favorable conditions of growth. The influence of light as the primary agent in the production of colour in plants is only efficient in its effect, in proportion as other agencies essential to growth are equally active, from which it may be inferred that, whatever cause operates to impede the secretions necessary to growth in plants, not only affects their structural organs, but also the due appropriation of those secretions which are essential to the formation of colouring matter in the leaves and flowers.

To enable the amateur cultivator to make a selection, the most attractive varieties are here arranged in sections, according to their peculiar features of blossom or foliage.

Section I.—Tricolor-Leaved, with Crimson Zone.

Lucy Grieve.—A beautiful variety, with well-expanded velvety leaves, having a central green disc; the ordinary bronze zone is principally changed into bright flame-red or scarlet, and there is a marginal belt of yellow. In addition to its more brilliant colour, it is distinguished from others in its section, by the yellow margin running into the inner green disc, it not unfrequently having a sharp wedge-shape yellow bar running through the disc. Its leaves are also more circular than in the majority of kinds of similar colour. It is admirably adapted for a vase-group in conservatory culture, and is exceedingly effective for summer growth in parterres and groups in the flower garden.

Mrs. Pollock.—This fine variety is picturesquely beautiful, and of a free robust habit, having well-expanded leaves, the green disc being surrounded by a rich bronze-red zone, splashed or barred with flame-crimson, and outwardly belted with golden-yellow.

Lavinia.—A fine and effective variety in the style of Mrs. Pollock, with a green-leaf disc, bordered with a dark bronze zone alternately belted and barred with brilliant flame-scarlet, and margined with a broad golden border. Flowers bright scarlet.

Captain Meade.—A beautiful and distinct kind, of medium vigour, with remarkably even velvety-surfaced leaves, nearly circular in outline. The green disc is bordered with a rich bronze zone, finely blended or deeply margined with bright flame-scarlet, and outwardly bounded by a rich yellow border. Flowers brilliant scarlet.

Sunset.—This highly picturesque variety is less robust, and of medium vigour, dwarf and compact in growth. The leaves are somewhat angularly lobed, the green disc being bordered by a dark zone, which is belted with a brilliant flame-scarlet band, and bounded by an outer rich golden-yellow margin. It forms a beautiful parterre, or ribbon-row, and is well adapted for a vase in conservatory decoration.

NEW VARIEGATED PELARGONIUMS.

Section II.—Tricolor-Leaved, with Rosy Zone.

Italia Unita.—A fine variety of a dwarf and compact branching habit, with small or medium-sized velvety-surfaced leaves, the green leaf disc being marked with a bronze zone, elegantly bordered with a bright carmine-tinted rose colour, and outwardly margined with a conspicuous creamy-white border. A beautiful and effective kind.

The Queen's Favorite.—An elegant dwarf form of small compact branching growth, with silver-edged leaves, the inner margin of which is bordered by an olive-tinted zone, richly suffused with bright carmine rose. Its neat style of growth in pots renders it specially adapted for miniature vases in conservatory decoration, or for garden parterres.

Mrs. Dumaresq.—In its style of growth this resembles the preceding, being equally dwarf and compact, but it has more even velvety-surfaced leaves, and more uniformly dentated margins. The leaf zone is a light bronze colour, elegantly belted and suffused with rose colour. It forms a pretty miniature variety for artistic vases in greenhouse decoration, or for the drawing-room conservatory, and is equally suitable for a small ribbon margin.

Picturatum.—A dwarf and densely branched variety, the green leaf disc being bordered with a carmine-tinted rose-coloured zone, and silver edge.

Annulatum rubrum.—Equally dwarf and compact with the preceding variety, and having well-expanded roundly-lobed leaves, the green disc very distinctly belted with a bronze-coloured zone, richly barred with brilliant rose, and bounded with a cream-white margin.

Waverley.—A dwarf variety of well-branched habit, with silver-belted leaves, the green disc bordered by a bronze zone very richly blended with carmine rose. Its bright scarlet flowers being produced freely, it forms an effective small bed, and is equally adapted for decorative purposes in pot or vase culture.

Section III.—Bronze-zoned.

Mrs. Longfield.—A fine robust free-growing variety, having well-expanded velvety leaves, with rounded marginal lobes. The green leaf disc is bordered with a beautiful broad flame-tinted zone, surrounded with a yellow belt or margin.

Mrs. Maxwell Hutton.—In style of growth similar to the preceding, and of a vigorous and ornamental habit, showing a light green leaf disc, suffused with yellow, and bordered with a rich dark bronze zone, forming an effective contrast with the outer yellow leaf margin.

Bicolor splendens.—A beautiful yellow-margined variety, having large, even, velvety-surfaced leaves of almost circular outline. The clear sulphur-coloured disc is bordered with a remarkably broad, rich, bronze-coloured zone, forming a brilliant contrast with the centre, and with the outer belt.

Section IV.—Prolific-flowered.

Mrs. Benyon.—A highly ornamental variety in the Mrs. Pollock style, of a dwarf free and compact growth; the leaf zone bronze-coloured, richly blended with crimson, and belted with a broad golden margin. Flowers brilliant scarlet, in large full-centred trusses. The most abundant bloomer in its section, forming a splendid bed or group.

Compactum variegatum.—A neat dwarf and effective variety in the Picturatum style, with well-expanded and rather rugosely-surfaced velvety leaves, the green disc being bordered with a bronze zone, alternately barred with clear brick-rose, and margined with a broad creamy-white belt. It is very prolific of brilliant scarlet flowers, and thus forms an ornamental group or medium ribbon-row, and is equally adapted for pot or vase culture.

Brilliant.—An effective bedding variety of free growth, and abundant bloom; leaves rather rugosely surfaced, and narrowly and somewhat imperfectly margined with white; trusses numerous; flowers rich deep scarlet.

Rose Queen.—An elegant and distinct silver-belted variety of free vigorous growth, and compact habit. The green leaf disc is bordered with a bronze zone. Flowers bright carmine-rose. From the abundance of its flowers it forms a beautiful bed or group in contrast with scarlet or rose-coloured sorts.

Rosy Gem.—An ornamental variety of dwarf and compact habit, with well-expanded velvety leaves, elegantly margined with a broad silver belt. Flowers rose-coloured, in large trusses, forming an effective bed, group, or ribbon line, in the Miss Domville style.

Section V.—Silver-edged, with Flowers Rose-coloured.

Rosette.—The finest variety in its section, having a dwarf compact branching habit, with well-expanded leaves, the disc being bordered with an obscure green zone, and outwardly belted by a broad conspicuous creamy-white margin. The flower scapes are short and numerous, with terminal full-centred trusses of elegant light rose-pink blossoms. From its dense style of growth it forms a beautiful bed or group, in contrast with salmon-rose in the green-leaved section, and with lake-crimson in the Nosegay one. For a second or third row in a ribbon-border, it is one of the most distinct and effective in character.

St. Clair.—A free vigorous well-branched variety; with somewhat angularly-lobed leaves, the green disc belted with a brown zone, and outwardly margined with a narrowish silver edge. The flower scapes rise well above the leaves, and bear large compact trusses of rich salmon rose-coloured blossoms. It forms an excellent medium-sized bed or group, and in a ribbon border is effective as a third row, with a pure rose tint in front.

NEW VARIEGATED PELARGONIUMS.

Section VI.—Gold Selfs, or with Slight Green Disc.

Cloth of Gold.—A beautiful variety of dwarf dense growth, with rich self golden-yellow leaves, relieved by a small green disc. Flowers crimson. Admirably adapted for contrasted groups or beds in the diamond pattern, or broad belts, alternating with the green-leaved varieties.

Golden Fleece.—Similar in its features to the preceding, but somewhat more vigorous in its growth, forming a close flat surface of rich golden leaf-growth. It is the counterpart of Tom Thumb in its dwarf habit of growth, and is well suited for ribbon rows or beds, in contrast with the opposite-coloured varieties.

Mrs. Milford.—A dwarf and robust variety, with rich velvety leaves of a fine buff-yellow colour, marked throughout the winter and spring months with a broad bronze zone, but this latter disappears by the influence of sunlight when planted out. It is well adapted for a ribbon border, or medium-sized bed.

Section VII.—Silver-edged, with Dark Zone.

The Countess.—An ornamental variety of dwarf-branched habit, with a creamy-white leaf margin, inwardly belted with a broad brown zone, which is richly barred with rose in the younger growth. Its prolific blooming habit, with bright scarlet blossoms, renders it very effective for beds, or parterres.

Countess of Warwick.—A dwarf and compact plant, having somewhat decurved rugosely-surfaced leaves, with a conspicuous creamy-white edge, and broad dark brownish-red inner zone. Flowers bright scarlet, freely produced.

Section VIII.—Variegated Nosegay.

Queen of Nosegays.—A seedling, and not a sport, forming the most beautiful variety in its section. It is of vigorous well-branched growth; and the green leaf disc is margined with a broad cream-tinted belt, passing into pure white. The flower-truss is a counterpart of Stella, remarkably large and compact, of a brilliant crimson scarlet, and of long continuance in bloom. It forms a fine contrast with the green-leaved Nosegays, and the zonal section.

Variegated Stella.—A fine seedling variety of Stella Nosegay, with compact dwarf growth, the leaves whilst young margined with brimstone-yellow, which merges into cream-white. Flower-trusses large, with rich scarlet blossoms. Adapted for a picturesque ribbon-row.

Stella lactea.—A true sport, from Stella, with somewhat cupped leaves, the green disc broken into sharp lobes, and broadly margined with rich cream-white. Trusses similar to Stella, the flowers of a rich crimson colour.

Section IX.—Variegated Silver, and Gold, for Edging and Scroll Work.

The Fairy.—A pretty dwarf variety, of dense dwarf growth, having silvery-margined leaves, with an inner pink zone, well contrasted by its rosy-salmon coloured blossoms.

The Queen's Favorite.—This beautiful variety forms a neat compact growth from six to nine inches in height, with silver-margined leaves, and carmine-tinted inner zone, and is well adapted for small parterre groups, and miniature vases.

Hotel de Cluny.—Distinguished by its peculiarly neat and compact style of growth, with miniature silvery-margined leaves, and inner bright rose-coloured zones. Flowers brilliant scarlet.

Golden Chain.—This well-known variety is valuable for its neat dwarf well-branched spreading growth, being easily trained for front belts or scroll work. Its well-expanded golden-margined leaves, and pure rose-coloured flowers, are distinct and effective.

Golden Harkaway.—An elegant miniature form, uniform in its compact low growth with Silver Harkaway, but distinguished by its well-expanded glossy gold-edged leaves, and light scarlet flowers.

Miss Sowerby, Delt

1. GOMPHIA DECORA. 2. HYBRID PINK GARIBALDI.

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PLATE LXXXIV.

GOMPHIA DECORA.

Fig. 1.

A NEAT and ornamental summer and autumn flowering hard-wooded hothouse shrub, with thin, leathery, dark-green, broadly oblong-elliptic leaves, abruptly acute, six to eight inches in length, and two to three inches in breadth, somewhat waved, and minutely toothed at the margins. The flowers are in terminal oblong racemes, from four to six inches in length, and are of a bright lemon or golden yellow, half an inch across, with roundish, heart-shaped, converging petals, having a small tooth-shaped lobe towards the base of each. The filaments rising from the centre of each blossom are erect and converging, tipped with bronzy-red anthers, which form a pretty relief to the golden-tinted flowers.

The majority of the species of this genus form neat evergreen, laurel-like shrubs, of which the present appears to be one of the most suitable for general culture, on account of its comparatively dwarf habit, and its natural tendency to bloom readily while of moderate size. It thrives well in a compost of three parts well-pulverized heath soil, and one of turfy loam. As a tropical shrub, the present species, in common with its allies, requires a high and genially moist atmosphere during the season of growth, and it also needs, as an essential condition of success in its cultivation, a periodic cessation of growth by exposure to a temperature of from 6° to 10° lower, in order to harden the growth for bloom. This being effected, the plants may be replaced in the warmer part of the stove.

One favorable feature to be observed in the present species is its tendency to produce the brilliant thyrsoid flower clusters at various periods of the year, by due attention to maturing the newly-formed growth.

HYBRID PINK GARIBALDI.

Fig. 2.

THIS elegant variety is an improved seedling form of that section of Garden Pinks of which the old favorite *Anna Boleyn* is a well-known example. From that variety, the present differs in its dwarfer and more compact growth, its shorter flower stems, which attain from twelve to fourteen inches in height, and its freer flowering habit. The flowers are of a richer violet-rose, with a much more effective crimson band in the centre. The individual blossoms are large and full, with well-formed pods not subject to burst. Its adaptation for forcing into bloom in

the early spring months is a valuable feature, in addition to its other qualities, whilst its thorough hardiness renders it equally valuable for open-air culture. By preserving it through winter in cold, well-ventilated pits or frames, and planting it out any time between March and June, it will produce bloom freely during the summer months, or it may with equal success be planted in the open beds from the last week in August until October.

Miss Sowerby, Delt.

GENISTA PROSTRATA.

ILLUSTRATED BOUQUET.

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PLATE LXXXV.

GENISTA PROSTRATA.

THE plant represented in the accompanying plate is one of a gay group of shrubby species, which are less common than their merits deserve, and, being perfectly hardy, are adapted to situations for which many other plants are not suited. Some of them are fine decorative plants for flower gardens and shrubberies. That now under notice was originally received by us from an amateur cultivator residing near Manchester, who had found it upon rockwork in his garden, and was struck by its effectiveness and beauty during its season of bloom. In the absence of some features which would identify it with the plant whose name it bears, there appears a strong presumption in favour of its hybrid origin, perhaps between *G. triquetra* and *G. triangularis*, combining, as it does, the strictly decumbent growth and large golden yellow blossoms of the former, with the smooth glabrous stems of the latter. It forms a very ornamental, hardy, deciduous, early summer-flowering shrub of rigid growth, and strictly decumbent habit, drooping immediately from the neck, and only rising on the stem from six to eight or ten inches in height at its most mature growth. The branches are dark-green, angularly four-sided and grooved. The leaves are borne on longish foot-stalks, and consist of three short, terminal, oblong or elliptic leaflets, nearly equal in size, and slightly villose on both surfaces. The flowers, which are produced singly at each axil, are large and numerous, of a rich golden-yellow colour, the projecting wings and keel being of a deeper orange tint, and the large upper petal or standard somewhat paler and incurved at the margin.

As a hardy shrub, this is admirably adapted for planting on rockwork, where its branches can fall over perpendicular masses of stone, or for covering low artificial mounds upon flower borders. When grafted half or full standard height, it also forms an elegant object for arboretums and shrubberies. In such positions, its large and brilliant golden blossoms are very effective when seen with a background of evergreen shrubs or trees. By partially restricting the extremities of the branches in the later spring or early summer months, so as to mature the remaining growth, it blooms freely on well-established plants in pots, and forms an interesting feature suspended in the cool conservatory, or set in vases for terrace decoration. After the flowering period it should be repotted if needful, and encouraged to make growth for the ensuing season. For the summer period it may be arranged with similar select shrubs upon a south or north border, or partially plunged until removed for winter protection to a cold pit or frame until spring.

In the same family are found several other plants of interest for greenhouse and conservatory decoration, respecting which the present opportunity may be taken to offer a few remarks :—

Genista monosperma. A very neat and elegant slender-branched half-hardy or cool greenhouse shrub, with gracefully pliant branches, somewhat resembling those of the White Portugal Broom, and readily distinguished by its silvery grey aspect. The flowers are borne in small conspicuous clusters, and are pure white and fragrant, the upper petal being marked with small pink or rose coloured spots. They are often produced in winter or in the early spring

months and form welcome ornaments for the conservatory or drawing-room. After the flowering season the plants should be encouraged to renewed growth during the early spring and summer months in the greenhouse. It is readily preserved in a deep cool pit, with protection, and from thence it may be removed to the conservatory or forcing-house for bloom, any time between autumn and spring.

G. FILIPES. This species is known generally in plant collections as *Cytisus filipes*. It is very similar in growth to the foregoing; but its thread-like silvery-grey half-drooping branches give it a more elegant character. Its snow-white fragrant blossoms are also produced in conspicuous clusters from December until March, at which period it often forms a very graceful and distinct feature in groups of early forced plants and flowers. This and the preceding species are most effective when grafted as half or three quarter standards two or three feet in height upon single stems of the Laburnum, and both require similar treatment, namely, to be potted in good friable turfy loam, with an admixture of one third porous sandy-grained heath mould. After the annual extent of growth is matured they may, alike, be preserved in a cold house or pit until again required for bloom in the conservatory or forcing-house.

G. RACEMOSA (*G. canariensis spicata*). A neat compact and much branched greenhouse shrub, from one to three feet in height, with comparatively small oblong spathulate leaflets, the young growth somewhat pilose, and producing numerous terminal spike-like racemes of bright-yellow fragrant flowers from January until June. The quick growth and free-blooming habit of this plant renders it valuable for cool greenhouse and conservatory decoration, and where cut flowers for vases are required in long succession it proves most useful.

G. RACEMOSA SUPERBA (*Cytisus racemosus superbus—C. Webbiana*). This handsome plant is generally known in gardens by the synonyms just quoted. It nevertheless appears to be but an improved seminal variety of the original plant, which was first introduced to English gardens by Mr. P. B. Webb, from Teneriffe, having been sent by him to the late Mr. Young, of Milford Nursery, in 1832. This plant was unfortunately lost, but when a drawing which had been preserved was subsequently shown to Mr. Webb, he identified it as the *Genista bracteolata* of Link. The parent plant produced seed very sparingly, but some of the seedling forms are great improvements in respect of the freedom of their growth, and the productions of larger flower spikes. The present differs from the original *Genista bracteolata* (*Cytisus racemosus*), in its freer growth, and longer racemes of bloom; and it is still more distinct from the variety previously described as *G. racemosa* (*canariensis spicata*), in its far more robust and stately habit, with larger and more elegant leaves, clothed on both surfaces with a silvery pilose nap. The numerous long terminal axillary racemes of rich golden-yellow flowers, are very effective through the early spring and summer months, and hitherto it has formed the finest plant in its tribe for competition groups.

G. RACEMOSA ELEGANS. A new and very effective garden variety, differing in its more compact growth, and long gracefully attenuate racemose spikes of delicately fragrant deep-yellow flowers. It is a valuable plant for conservatory decoration in the earliest spring and summer months.

G. EVERESTIANA. A seminal form originating from the racemose-flowered varieties of *G. canariensis*, of a neat compactly branched habit, with elegant attenuate spikes of very deep rich golden-yellow fragrant flowers. It is a beautiful variety, and the most distinct in colour yet obtained. It is also a very free-blooming plant.

All the greenhouse species in this tribe thrive well in a compost of three parts friable turfy loam, and one part sandy heath-mould. The principal precautions in respect to their management are that they require to be very freely pruned back after the flowering period; and during the period of partial rest, between the blooming season and the recommencement of growth, a dry and arid atmosphere must be avoided, by giving them occasional syringings. During the season of growth a genial temperate atmosphere must be maintained, after which the plants may be set out with other cool greenhouse plants in the open air, until housed for the winter.

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CLARE ST. BRISTOL.

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